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REPORT OF

The Secretary of Agriculture

1955

JUL 11 1956
U. S. DEPARTMENT OF AGRICULTURE

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U. S. GOVERNMENT PRINTING OFFICE: 1956

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DEPARTMENT OF AGRICULTURE
Washington, D. C.

THE PRESIDENT,
The White House, Washington, D C.

DEAR MR. PRESIDENT: This report is an account of how the Department of Agriculture serves all the people of the Nation through service to the Nation's farmers.

Back of its printed pages are the patient scientists who continually combat plant and animal diseases and destructive insects—who constantly search for better methods of production, breeding, and feeding—who seek out improved plant varieties—who are ever alert to discover new and better uses, and new and expanded markets, for agricultural products.

There are the technicians who show farmers and ranchers how to conserve their soil, woodlands, and water resources, and how to use them more effectively.

There are the Extension workers who carry information on better farming to the farmers themselves, helping them solve production and marketing problems, and helping to improve farm and home living.

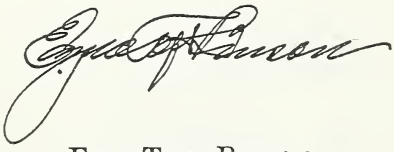
Back of the statistics are the employees in Washington, Chicago, Dallas, Kansas City, San Francisco, and many other centers, not only in the United States but throughout the world, who provide information to guide farmers in their marketings.

There are the employees in the county offices who administer farm programs at the local level—the foresters who ride the range to protect our timber resources against destruction by fires, insects, diseases, and abusive practices—and many others whose work, while less spectacular, is no less vital to agriculture and all our people.

This report is, in a sense, a salute to the devoted public servants of the USDA whom I have come to know, and deeply admire, these past 3 years.

I transmit herewith the annual report of the Department of Agriculture for 1955.

Respectfully yours,



EZRA TAFT BENSON,
Secretary of Agriculture.

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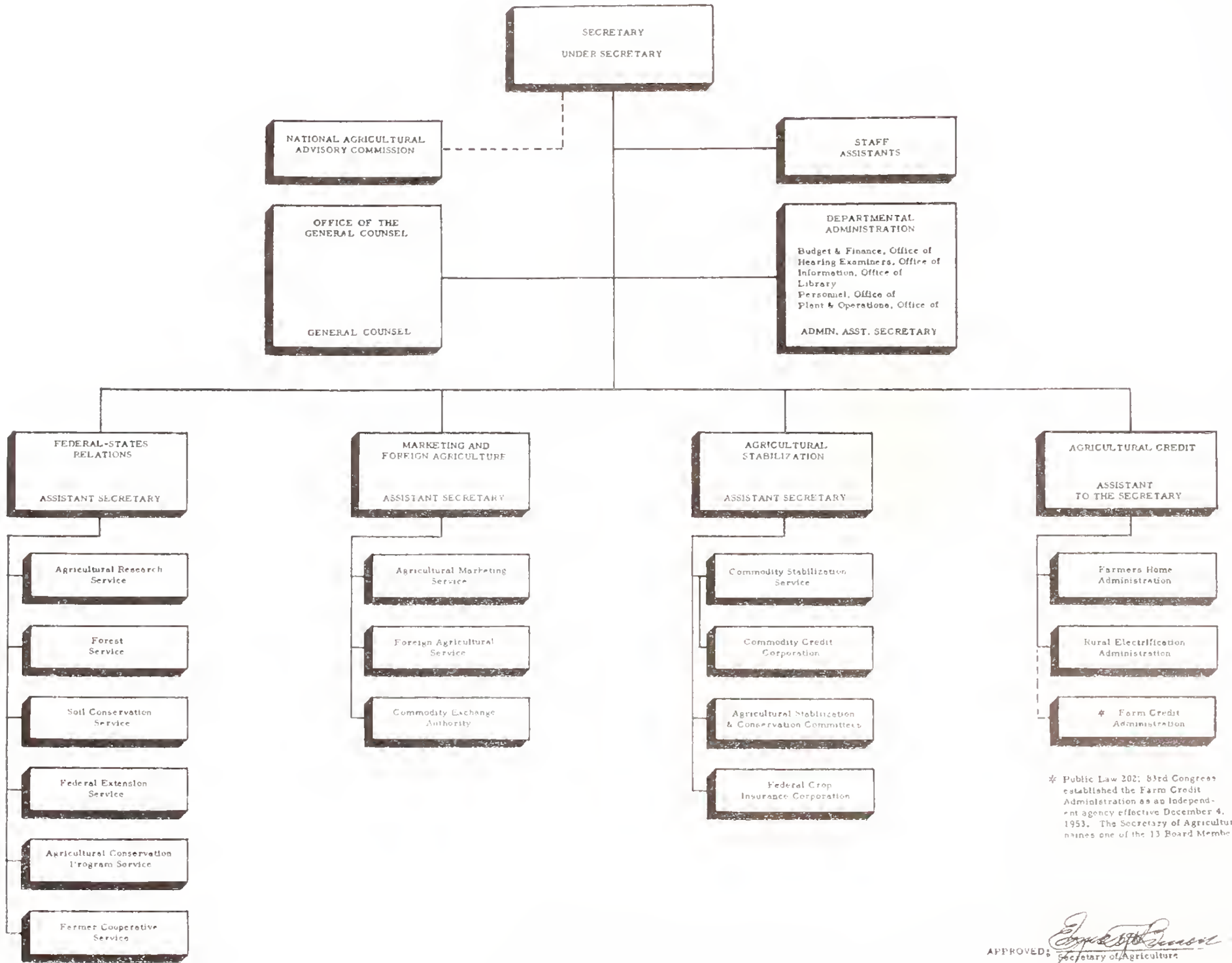
UNITED STATES DEPARTMENT OF AGRICULTURE



* Public Law 202, 83rd Congress established the Farm Credit Administration as an Independent agency effective December 4, 1953. The Secretary of Agriculture names one of the 13 Board Members.

APPROVED: Ezra Taft Benson
Secretary of Agriculture

DATE March 17, 1955

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REPORT OF THE
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1955

Serving the People

When John Jones ducked into his shower this morning he probably had no thought that the bar of soap in his hand was made of animal and vegetable fats and oils and of rosin—all of which are agricultural products.

When he toweled off after his shower he never once reflected that the raw material in his towel probably came from the fields of Texas, Mississippi, Arkansas, or California.

When he selected his clothing for the day—underwear, socks, shoes, shirt, tie, and suit—he did not advert to the fact that most, or all, of those articles had their beginnings on American acres in widely scattered quarters of the Nation.

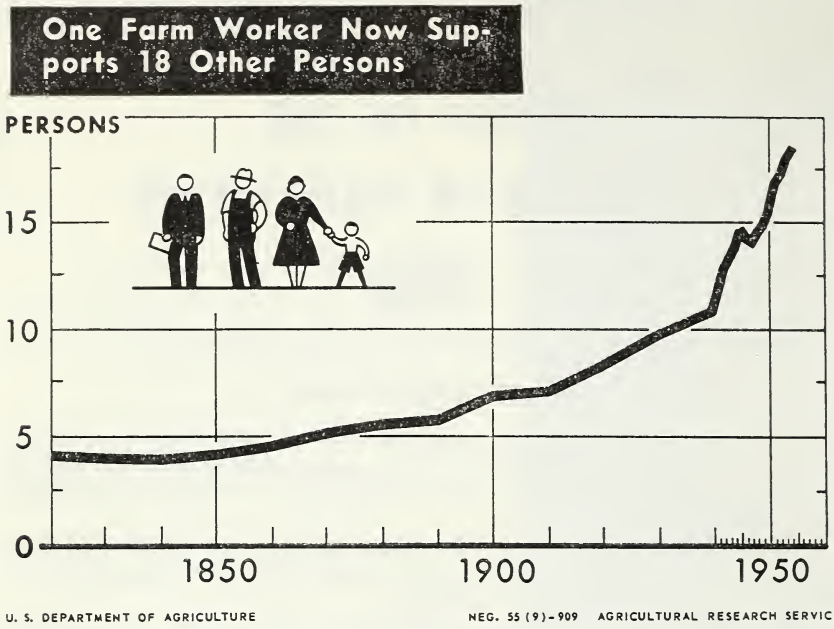
Nor did John Jones realize that the cotton goods he regularly wears owe much to the plant explorers and research workers of the Department—explorers who found in foreign lands some of the best cotton varieties we have and introduced them here—and research workers who have developed many of the desirable qualities we find in cotton fiber and cloth today.

The cattle industry that supplied the raw material for John Jones' shoes would be vastly different but for the work of the Department in stamping out animal diseases and finding better ways to breed, feed, and care for livestock.

The wool in some of his suits may have come off the back of Columbia sheep, a modern made-to-order sheep developed by Department scientists and breeders.

A typical breakfast for John Jones may consist of fruit, cereal, eggs with bacon or ham, toast, and beverage. Much of the orange juice the American people consume is a frozen concentrate developed by our agricultural research scientists. The fruit itself owes its flavor in large part to USDA plant explorers and breeders. Oranges that ripen in the fall in the Gulf Coast region were introduced from the Orient. Methods of refrigeration devised by the Department lower the cost of shipping fruit of all kinds. Sprays invented by Department specialists protect all kinds of fruit against insects and fungus diseases.

The cream or milk we drink probably came from a dairy employing practices standardized by the Department and operating under a mar-

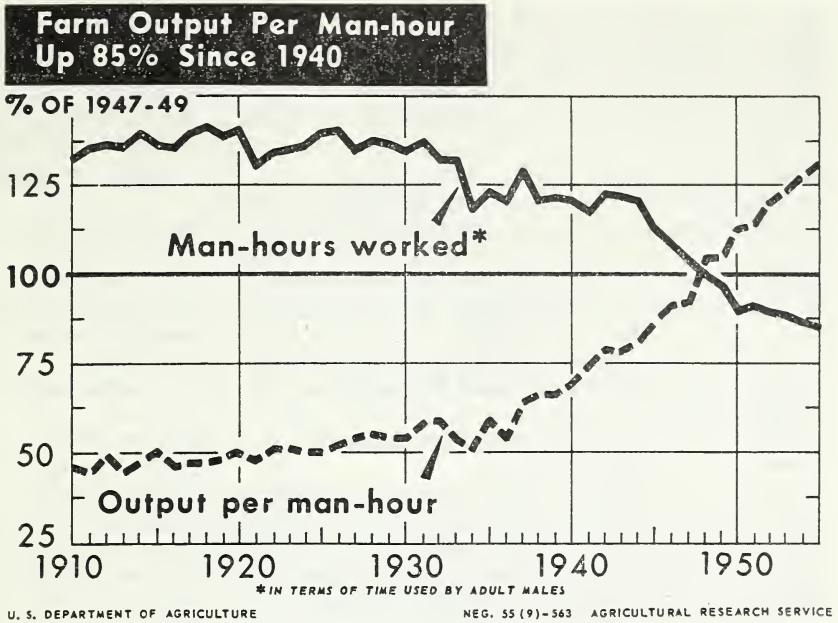


The outstanding progress in farm technology during the past decade and a half means that the production of one farm worker "supports" an ever larger number of consumers. In 1940 the average farm worker produced enough food, fiber, and tobacco for himself and almost 10 others. Now his output is sufficient to supply himself and about 18 others. Part of this increased productivity is due to greater indirect contributions of nonfarm workers to farm production. Improved technology on the farm has meant greater dependence on nonfarm supplies such as chemical fertilizers, machines, gasoline, and oil.

keting agreement to promote more even milk distribution. The sugar may be of a variety introduced by our scientists from abroad. The eggs likely came from poultry bred and fed in accordance with the Department's latest discoveries. The ham or bacon may carry a little blue stamp—this guarantees that it came from a healthy animal that was slaughtered under Federal inspection. Our bread is probably from grain graded by Federal standards and enriched with vitamins.

On the financial page of the newspaper appear the Department's crop and market reports. They mean a great deal to the entire food industry, and to consumers as well. On another page scientifically balanced menus prepared with the help of nutrition experts in the Department may be detailed. For years housewives have been planning dinners around the basic food groups which the Department has done much to make widely known.

Out in the fields all through the Nation, farmers every year carry on the complex job of feeding more than 165 million Americans. One farm worker, on the average, produces enough for himself and 18 others. Many farmers work closely with Department personnel



Over the past 15 years both production per acre and per breeding unit increased by a fifth. Output per man-hour of farm labor about doubled in the same period. The record volume of farm output in 1955 is 35 percent greater than in 1940. Because of increased efficiency, this is being accomplished with 15 percent more breeding units of livestock, about the same acreage of cropland, and 30 percent fewer man-hours of farm labor.

in applying soil conservation practices, tying down the life-giving soil so that wind and water cannot steal it. Others confer with their county agents on a farm unit plan or other arrangements for more efficient production. Some negotiate for loans with the Farmers Home Administration to make themselves more productive units of our great farm system. Cooperative associations make plans with the Rural Electrification Administration to bring the modern giant, electricity, to other rural communities—or to improve telephone service.

Five days a week during most of the year children in thousands of schools participate in the school lunch program administered by the Department—a program which helps to provide for many undernourished children their best meal of the day.

There are at this moment in every big city in the country children running high fevers, breathing with difficulty, seriously ill. By tomorrow morning the temperature of those children may be normal and the danger past—because of the wonder drug penicillin. The Department's regional research laboratory at Peoria devised the first means of producing penicillin in commercial quantities.

Unknown to most of our citizens, the fingers of the Department spread wide and extend in many directions. Constantly through the

day and night ships and planes from overseas are landing on our shores. To prevent foreign insect pests from entering our country and attacking our plant life, quarantine officials of the Department inspect thoroughly all plant material on incoming vessels. Since 1912, when the Plant Quarantine Act was passed, only a few major foreign pests are known to have invaded the United States. One, the Mediterranean fruit fly, has been stamped out. The remainder, such as the Japanese beetle, are being vigorously fought.

Taxpayers like to know what dividends some of their tax dollars pay.

The research that made possible commercial production of penicillin cost $100,000. Apart from the lives penicillin has saved and the amputation of limbs it has made unnecessary, the commercial value of penicillin produced every year is in the hundreds of millions.

Research on hybrid corn cost $15 million. Its annual value is close to $1 billion.

Every penny spent in agricultural research and education is a sound investment in a better future.

So also, the dollars spent in sound programs of marketing service, expansion of exports, conservation, forest protection, rural electrification and telephone service, credit, crop insurance, production adjustment and other regulatory and service programs, are solid investments in the future of the entire nation.

FEDERAL-STATES RELATIONS

Agricultural Research Service

Because of agricultural research:

A Michigan dairy farmer has made his dairy herd one of the most efficient in the State.

A manufacturing plant opened in Plant City, Fla., in December 1954 to produce orange juice crystals commercially for the first time.

A Virginia burley tobacco crop was increased in value by $160 for each acre-inch of water applied as supplemental irrigation.

An Illinois swine producer showed marked financial gains on his year's operations after he eradicated a crippling outbreak of vesicular exanthema and began cooking the garbage he feeds to swine.

A California grain dealer freed his warehouse from a heavy infestation of the khapra beetle, the most damaging pest of stored grain.

These are some of the people and places that benefited by the results of agricultural research in 1955. There are many hundreds more of them in all parts of the country.

The Agricultural Research Service helps to develop these results in carrying out its two-fold responsibility: (1) The agency is responsible for conducting research projects aimed at determining better methods of farming, improving the farm home, developing new types of plants and animals, and gathering new knowledge to make for a more efficient agriculture in a more efficient economy. (2) ARS is also re-

sponsible for carrying out regulatory functions that put the results of research to work in helping to uphold standards of production and in protecting farms and related industries from the damages of disease and insect pests. This two-fold responsibility is frequently close-knit in operation.

Research Results Pay Off for a Farmer

When the present owner bought the dairy farm in southern Michigan back in 1945, the cropland and buildings were badly run down. Yields of corn, wheat, oats, and hay were low. An entire year's gross income with the herd of 10 to 12 cows was little more than a normal 2-weeks income from his 30 cows now.

By following recommended practices developed through research for such operations as crop rotation, fertilization, and harvesting, the owner improved his efficiency. His yields per acre increased to: corn, 86 bushels; wheat, 45 bushels; oats, 55 bushels; corn silage, 15 tons; and alfalfa-brome hay, over 4 tons.

His dairy enterprise was made more efficient by the use of proved sires, a culling program based on the Dairy Herd Improvement Association records, and management practices that lengthen the productive years of better cows. In the 10 years he has owned the farm, the owner has made his herd one of the most efficient in the State. In 1954 the herd averaged 12,400 pounds of milk per cow. A recent survey in the State showed that the herd had one of the lowest feed costs per 100 pounds of milk produced.

The family worked out a satisfactory allocation of funds between home and farm needs. Farm buildings were improved. The farm home was converted into a modern and convenient place to live.

Crops Tailored to Farmers' Needs

Much of ARS research work aims at meeting specific needs of farmers. For instance, soybeans could not be grown efficiently in some areas because of heavy disease losses, and in other areas even the best adapted varieties matured too early or too late for good results. To solve these problems research produced three new varieties which were released in 1954.

1. *Lee* is adapted to the mid-South and is resistant to bacterial pustule, wildfire, frogeye, and target spot, and is more tolerant to root-knot nematode and much less susceptible to purple seed than the most popular variety now grown in the South.

2. *Chippewa* was released in Wisconsin, Minnesota, Michigan, South Dakota, and Ontario. It is of special interest to growers in areas where the high-yielding Blackhawk variety is too late.

3. *Norchief* has been released to growers in Wisconsin, Minnesota, Michigan, and Ontario. It is adapted to the same areas and even farther north than Chippewa.

The foundation seed project, started in 1949, is being continued in order to increase the seed of superior forage crop varieties and enable more farmers to grow better forage. High quality forage is the basis for efficient livestock farming and our abundance of milk, meat, shoes, and woolens.

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Here is how certified seed stocks have been built up through this cooperative endeavor.

	Certified Seed Available for Planting	
	1949	*1955*
	lbs.	*lbs.*
Atlantic alfalfa	15,000	2,279,000
Buffalo alfalfa	324,000	8,159,000
Narragansett alfalfa	0	750,000
Ranger alfalfa	1,101,000	32,627,000
Vernal alfalfa	0	2,000,000
Kenland red clover	37,000	2,500,000
Pennscott red clover	0	339,000
Climax lespedeza	0	5,000
Tift sudangrass	0	774,000

ARS continually introduces new plants from foreign countries. Plant breeders cross these varieties with domestic plants so as to tailor crops to fit more exactly the needs of each area.

The New Hampshire Agricultural Experiment Station has distributed an extremely hardy freestone peach, the "Sunapee." Its hardiness was derived from material collected in the Caucasus Mountains of Russia. The mysore raspberry, introduced from southern Asia, has proved well adapted to southern Florida; it is the only raspberry that will grow in that area. Walnuts introduced from northern China are well suited to Oregon. The recently released "Doublerich" tomato, high in vitamin C, gained this quality through a wild tomato from Peru.

Virus-free, nematode-free strawberry plant stocks were made available to commercial growers on a large scale for the first time during the past year. Between 150 million and 195 million of these healthy, vigorous plants were available for spring planting in 1955.

Recent research has shown that nematodes in strawberry planting stock can be killed by a hot-water treatment. Several commercial nurseries are now using this treatment to clean their foundation stock.

Antibiotics are showing great promise in controlling costly crop diseases, and particularly certain bacterial diseases that have not been successfully controlled by other methods. On an experimental basis, they have controlled effectively such diseases as fire blight in pears, bacterial spot in peaches, wildfire and bluemold in tobacco, and halo blight in beans. Research results also indicate that treating seed with streptomycin may effectively control the serious bacterial leafspot diseases of the oil seed crop, sesame.

Redesigning Livestock

Animals, too, have been tailored for more efficient production and marketing. The meat-type hog was designed to supply the demand for more lean pork and less fat, more efficiently produced.

A market hog generally produces enough meat for two persons and enough lard for three persons, on a yearly pork consumption basis. A meat-type hog that produces enough meat and lard for only two persons will help eliminate the lard surplus with its depressing effect on hog prices.

Forty years ago, well fed hogs weighed 200 pounds at 8 to 9 months of age and required about 400 pounds of feed per 100 pounds of gain. The meat-type hog reaches 200 pounds at 5 to 5½ months, or even

less. And they reach that weight on 300 to 350 pounds of feed per 100 pounds of gain. Improvements in breeding, feeding, and management practices made the difference.

Research has developed methods for measuring the back-fat thickness of the live hog to aid in the identification, certification, and distribution of superior meat-type breeding stock. ARS, in cooperation with breed record associations, the packing industry, and State agricultural experiment stations, is testing these methods in swine herds. Results so far show that good meat-type hogs are found in all breeds tested. By good breeding, good nutrition, and marketing hogs at proper weights, the swine producer is able to furnish consumers heavily muscled pork and a minimum of excess fat more efficiently than he formerly produced fat-type hogs.

New Knowledge About Animal Diseases

Study of serious animal diseases was started at the new Plum Island Animal Disease Research Laboratory in 1954. Work was begun on foot-and-mouth disease in 1955.

Foot-and-mouth disease, widespread throughout most of the world, is the most contagious and costly foreign disease that could be introduced here. Laboratory scientists have planned a broad research program aimed at finding better methods of detecting and eradicating it.

A highly significant contribution toward speeding further study in the research program has already been made. Scientists have developed a way of growing foot-and-mouth disease virus on the kidney tissue of swine and cattle that can provide the virus necessary for experiments in methods of spread, in diagnosis, and in prevention, control, and eradication of the disease. Normal kidneys from slaughter houses can be used. Thus, the source of material is readily available and inexpensive. The new method replaces a much more costly means of growing foot-and-mouth disease virus in tongues of healthy live cattle that must be slaughtered and the carcasses destroyed 24 hours after inoculation.

In cooperation with State disease control officials, ARS scientists have developed a new method of interpreting the blood test for brucellosis. This method is now being used in the national eradication program.

Recent developments in studies of lymphomatosis, or fowl paralysis, may point the way to the eventual eradication of the most costly disease of poultry. Scientists at the ARS Regional Poultry Laboratory at East Lansing, Mich., by inoculating the mother hen, this year for the first time succeeded in producing chicks immune to the visceral form of the disease. If this research finding can be developed into a practical means of controlling lymphomatosis, poultry producers will be able to save the $75 million a year they now lose to the several forms of this cancerous disease.

Research conducted by ARS in cooperation with several States has recently produced a practical test to identify carriers of the costly cattle disease, anaplasmosis. A way to produce dependable testing material in quantity has just been perfected. Unchecked in this country for a quarter of a century, anaplasmosis costs some $10 million annually in mortality and unthriftiness of cattle. With the new test

method as a tool, ARS animal pathologists are working out cooperative plans with livestock sanitation officials in several States to find the disease wherever it may be, the first step toward wiping it out.

Plant Pests and Their Treatment Studied

The yellow clover aphid became a serious pest of alfalfa in the Southwest during 1953 and 1954, and a method of controlling its spread is urgently needed. Cooperating State research workers have made progress toward finding an answer for this need. Several insecticides have been shown to control the aphid; however, the treatments are costly, because, to be effective, they must be made at frequent intervals.

In preliminary work conducted in California at least two strains of alfalfa have shown resistance to the insect. Further experiments are in progress to confirm these early findings and to determine if resistant plants will be an effective and more practical method of controlling the yellow clover aphid.

We are intensifying research on insecticide residue studies. The increasing use of new insecticides makes it more important that we be sure residues on food products are safely below predetermined tolerance levels for human consumption.

Engineering Research Improves Efficiency

Southern cattle raisers, because of differences in climate and other environmental factors, frequently need different types of barns and equipment from those used in other areas. ARS has cooperated with the agricultural experiment stations of the Southern States in developing 36 plans for various types of cattle barns and equipment that help make operations more efficient.

An attachment for planters has been developed for the Southwest subhumid cotton growing area that could result in saving $6 million to $10 million annually in the cost of replantings. It features a narrow furrow opener and a seed press wheel with a soft rubber tire which presses the seeds into firm moist soil before they are covered. The correct placement and uniform shallow covering help prevent the seed from drying out, or, if rain falls after planting, failure of plants to emerge because the seeds were covered with too much soil. About 10,000 units were manufactured and put into use in 1954.

Farm Home Gets Research Attention

Home Economics research has given special attention in recent studies to the removal of stains from fabrics with new finishes and fabrics of man-made fibers. Recommendations have also been made on how homemakers can remove new types of stains, such as those from ball-point pen ink and aluminum paint, and how to use new modern products, now available for the first time, for stain removal.

Another home economics study provides help in planning closets and other storage space in the farm home. Current needs of farm families are reflected in recommended design specifications. This and related information resulting from the coordinated program of housing research of the ARS and State agricultural experiment stations furnish architects and builders with information needed to improve the functional quality and the sales value of dwelling units.

Increasing Markets for Agricultural Products

The food industry and consumers want a full-flavored orange juice that is easily shipped and stored without refrigeration. By developing a method of converting orange juice into a compact powder, which can be quickly reconstituted by the addition of water, ARS scientists met these requirements and broadened the outlet for citrus fruits, as demonstrated by the opening of a new manufacturing plant in Plant City, Fla.

The same process has been perfected for the manufacture of tomato juice and grape juice powders. These products, however, are not yet commercially available.

Research has developed four new products to broaden the uses of potatoes: (1) Dried potatoes in new flake form which make fluffy mashed potatoes when mixed with hot milk or water; (2) potato granules dried to a new low moisture content of 3 percent, which greatly improves storage stability; (3) a fat-free puffed potato tidbit for out-of-hand eating, as a breakfast food, and in soups and stuffings; and (4) a potato chip bar which takes only one-twentieth normal space in shipping and provides a high density military ration with a popular flavor.

In the past our inedible fats were used in soaps, but in the last 10 years nearly 1.5 billion pounds of fat per year have been replaced by synthetic detergents, resulting in large surpluses and low prices for animal fat. Research, conducted partly under contract, developed information that has led to large-volume outlets for animal fats in feeds. When properly stabilized, fats are particularly useful in feeds because of high calorie value, increased palatability, ease of pelleting, and elimination of dust problems. Fats are also used in making plastics.

A cotton fabric with superior flame-resisting qualities has been developed in the research program to expand the uses of this fiber. The treated fabric passes the most stringent laboratory evaluation tests, including a flaming-match test. Initial resistance is retained after 15 launderings.

In these and many other ways, utilization research continues to develop for consumers more and better products and provides farmers with expanding markets for their production.

Supplemental Irrigation May Pay in the Rain Belt

Supplemental irrigation may be the answer to recurring heavy drought losses in the rain belt. Last year, during a dry season, irrigated burley tobacco in Virginia, receiving 3.5 inches of water applied during the critical period from knee-high to full bloom, yielded a crop having a value of $1,789 per acre. A similar unirrigated crop brought a return of only $1,228. Thus, each acre-inch of applied water increased the crop value by $160.

In New Jersey, sweet corn was a complete failure on unirrigated plots, while irrigated corn averaged 2.2 tons per acre; irrigated potato yields were increased 70 percent over unirrigated. On cotton in Georgia, an application of 4.7 inches of water produced 1,979 pounds of seed cotton per acre while the unirrigated yield was 1,395 pounds. In Missouri, irrigated cotton produced 2,650 pounds as compared with

1,450 on unirrigated land. In severe drought areas in Missouri, South Carolina, and Mississippi, unirrigated corn was a complete failure, while 6 to 10 inches of water produced yields of 65 bushels per acre or more. Soybeans in Missouri produced 9 bushels per acre without irrigation and 32 bushels with 12 inches of irrigation water.

Experiments are being continued so scientists can more accurately recommend when to irrigate and how much irrigation water to use to make it pay.

Meat Inspection Protects Consumers

Many of ARS regulatory functions protect the consumer as well as the standards of agriculture and its related industries. Most familiar of these functions is the Federal Meat Inspection Service.

When the Service was established in 1906, inspection was provided in 163 establishments in 58 cities. During the year ending June 30, 1955, inspections were conducted at 1,149 establishments in 446 cities and towns. More than 98 million food animals were inspected before and after slaughter.

In addition to ante-mortem and post-mortem inspection of food animals and the rejection of diseased or otherwise unfit meat, the Meat Inspection Service (1) supervises the preparation of meat and meat food products; (2) supervises labeling of meat and meat food products; (3) certifies meat and meat food products for import and export.

Also, through meat inspection, diseased animals are discovered and can then be traced to their point of origin, thus providing the means for finding pockets of infection and eradicating them before they spread more widely, causing even greater losses.

Fight Against Animal Diseases

Animal diseases cost livestock producers losses estimated at nearly $2 billion every year. At least 10 percent of all farm animals die annually from disease or parasitism. The potential meat supply lost would feed 10,000,000 people for the entire year.

A swine producer in Illinois had 4,200 raw-garbage-fed swine when vesicular exanthema broke out in his herd. Because of the disease or complications arising out of it, about 2,000 swine, valued at approximately $100,000, died. After disposition of the infected animals and disinfecting the premises, through measures prescribed by the Vesicular Exanthema Eradication Program of ARS, the owner restocked and in January 1953 began feeding cooked garbage, established as the best method of preventing the spread of this and other serious diseases among garbage-fed swine.

During the past year his records show a marked increase in efficiency of production, a reduction of 50 percent in expected death losses, fewer intestinal disturbances, and fewer rodents and flies on a much more sanitary farm.

Vesicular exanthema appeared in 40 States between July 1952 and the early months of 1953. At the end of the fiscal year 1955, the active eradication program—emphasizing the cooking of garbage fed to swine, controlled movement of garbage-fed swine, inspection, and disinfection—had reduced incidence of the disease so that only small areas of 6 States were under quarantine for vesicular exanthema.

Brucellosis is a disease that normally costs the cattle industry an estimated $45,000,000 a year and constitutes a threat to human health. The brucellosis eradication program was accelerated at the direction of Congress to move more quickly toward complete eradication of the disease. When the expanded program was started in September 1954, slightly less than 26 million cattle were under supervision in one of the four approved plans for eradicating brucellosis. By the end of the fiscal year, nearly 33 million cattle were under supervision, an increase of about 7 million. During fiscal 1955, 14 million cattle were tested for brucellosis, an increase of more than 50 percent over the previous year. At the end of the year 71,606 herds were certified free of brucellosis.

Disease eradication programs were also continued against tuberculosis, scrapie, blue tongue, cattle tick fever, dourine, and glanders.

Animal inspection and quarantine personnel are constantly on guard to prevent entry into this country of foreign animal diseases that would threaten the herds and flocks on farms and ranches. All horses, ruminants, swine, and poultry offered for importation into the United States during fiscal 1955 were inspected at coastal, air, and border ports of entry. Certain animals and poultry are quarantined upon arrival at designated quarantine stations. Eight times during the year (5 times at the port of New York and 3 times at the port of Los Angeles) Newcastle disease was found in quarantined poultry. Strains of the detected disease were of foreign types, which can kill up to 100 percent of infected flocks and are much more lethal than the strain of Newcastle disease already in this country.

Cooperation in Khapra Beetle Program

The fumigation of a California warehouse to rid it of the dreaded khapra beetle was the result of cooperative efforts of State and Federal agencies, including the Agricultural Research Service, and various segments of the grain storage and chemical industries.

The first appearance of the pest in the Western Hemisphere was announced by ARS November 20, 1953. In April 1954 a survey in 10 western States was started to determine the spread of the insect. A method of treatment was devised through experimentation, and actual fumigation of infected warehouses is being conducted. Quarantines were established to prevent the spread of this most dangerous of all pests of stored grain.

Protection Against Plant Pests

Effective quarantine inspection of foreign and domestic plants continues to prevent the entry and distribution of foreign pests. Destructive plant pests from throughout the world are frequently intercepted with agricultural products in cargo, stores, baggage, mail, or as stowaways aboard vessels, planes, railway cars, and vehicles. Such interceptions during fiscal 1955 totaled 18,500—11,500 instances with insects and 7,000 instances with plant diseases.

More than 48,000 vessels and nearly 90,000 planes from overseas were inspected at ports in the United States. Over one-third of these were found to be carrying prohibited or restricted plant materials.

More than 15 million vehicles, over 2 million railway passenger coaches, and 86,000 freight cars from Mexico were inspected.

More than 3¼ million foreign mail packages were inspected at various ports of entry. Some 1,500 of these contained prohibited plant material and were refused entry.

Pink bollworm infests Oklahoma, Texas, and parts of Arizona, Arkansas, Louisiana, and New Mexico. Quarantines and regulatory activities have prevented the pest from spreading rapidly and widely through the cotton belt.

An amendment to the Federal Food, Drug, and Cosmetic Act created new duties in plant pest control activities during the year. The law now requires that the Department of Agriculture certify to the Secretary of Health, Education, and Welfare that each pesticide chemical, for which a tolerance or exemption is requested, is useful for the purpose proposed by the manufacturer. With each certification, the Department is requested to submit an opinion as to whether the tolerance or exemption proposed for the pesticide reasonably reflects the residue likely to result. These recommendations will be based on the results of insecticide residue studies now being conducted.

Cooperative Agricultural Extension Service

Five years ago Mr. and Mrs. W., Hickman County, Ky., were barely making a living from their 100-acre farm. As third generation owners, they found their home livable but not one in which they took pride.

Today, the W's and their 6-year-old son live in a new modern home and enjoy a farm income that has nearly doubled.

The W's in 1950 started working out a complete long-time plan with their extension agents. With the help of the county agricultural and home demonstration agent they thought their problems through, developed goals, planned adjustments and began putting into effect the improved soil, crop, and livestock practices that have made their farming profitable and brought them better living.

The number of farmers assisted with this type of planning greatly increased during fiscal 1955. Many of them are already showing the way to more balanced, more successful farming in their communities. The 2,000 farmers assisted with complete farm and home unit plans in Kentucky in fiscal 1955 had more than 150,000 visitors who dropped by to study and see their plans in operation.

Help Farmers Base Adjustments on Science

Extension agents used scientifically developed self-help methods in assisting more than 6 million rural families and many small town and urban families to adopt improved farming and home-making practices during the year.

Agents made more than 21 million personal contacts and nearly 4 million farm visits; they had over 8 million visits in their offices. They used volunteer local leaders, press, radio and television, and more than 26 million farmers' bulletins and leaflets to carry localized research results and farm and home information to the people.

This is an era of adjustment for farm families. Continued high farm output calls for production and marketing adjustments. De-

clining farm income and continued high costs and large investment risks place the accent on better management. Rapid advances in technology make it necessary that research results should be rapidly adopted to local situations and applied faster on farms.

Extension agents in Nebraska faced a major job of helping farmers shift more than a million acres from surplus crops to drought resistant sorghum, improved pastures, and other needed feed crops. In the South, where cotton allotments had been cut 5½ million acres, they helped farmers grow better cotton more efficiently while shifting diverted acres to timber, soil improvement, pasture and feed crops for the expanding livestock numbers needed in that area. Georgia extension workers expected sheep production in that State to increase 100 percent in 1955, as a result of a sheep production program with demonstration flocks in 10 districts scattered over the State.

On the Scene for Emergencies

Extension agents faced many emergencies with farm people during the year. Continued drought in the Southwest was met with increased emphasis on forage, silage, and soil-conserving crops and practices. Damage from storms and floods in the Northeast during the late summer and fall was lessened by extension agents on the scene, who helped with emergency salvage, marketing, special fruit and crop spray schedules, and farm and home reclamation recommendations.

County extension agents in many counties continued to lead the fight against crop and livestock insects and diseases that cost farmers millions every year. The Red Lake, Minn., agent had a $400 telephone bill one week keeping in touch with farmers and directing a spray schedule against army worms. Farmers in the county lost one-fifth of their grain crop in 1954, but spraying at the right time prevented damage estimated at 3 million dollars.

The Macon County, Ill., agent helped farmers organize a brucellosis control program when a survey showed 34 percent of the grade A herds infested. All grade A milk in the county now comes from brucellosis-free cattle.

Help in the Markets, in the Home

Extension help was needed to meet marketing problems. In addition to helping farmers get and adapt locally the facts about market needs and the outlook for different crops and livestock, extension workers helped farmers and handlers adopt labor-saving and waste-reducing practices in assembling, processing, and distributing farm products. Increased efforts in consumer education led to better utilization of agricultural products by farmers and consumers.

Declining farm income, rising living costs, many new fabrics for clothing, and progress in food packaging and freezing caused homemakers to ask for more help from extension home demonstration agents. Requests for help with laundering problems increased 45 percent, food selection 38 percent, and clothing selection 29 percent. For the first time, almost as many women asked for guides in purchasing clothing as in making clothing at home.

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Over Two Million in 4–H Clubs

Nineteen-year-old C. K. of Winston County, Miss., illustrates how 4–H clubs help prepare young Americans for life. He and his 18-year-old bride, like many other young couples, faced a tough job getting started in these high-investment, complicated-farming times. They bought 82 acres adjoining C's father's farm. The projects in crop and livestock raising, and in leadership and citizenship C. carried on for 9 years in 4–H Club work have given him many advantages. The 26 calves he has raised as a 4–H member now are paying off not only in added experience but as the nucleus for his dairy herd.

One of the young couple's first steps was to get help from county extension agents in cooperation with other agencies in developing a long-time, balanced farming plan and in remodeling a tenant house into a livable home.

There are now more than 88,000 4–H Clubs with a membership of over 2,100,000 boys and girls. They receive training from extension agents and 345,000 volunteer local club leaders. They completed in 1955 more than 3½ million projects, and further helped their communities and developed themselves in the community service, health, safety, and citizenship activities carried on by each club.

Extension agents in 1955 continued their increased emphasis on finding and meeting better the needs of older club members and of young men and women beyond 4–H Club age; in interesting the thousands of farm and rural youth not in 4–H Club work; and in keeping members in club work longer than the present average of 2½ years.

In all of these educational activities extension agents helped local people, first, to get the facts and, second, to plan and carry out their own local self-help programs. The basic program planning was largely done by county councils or committees of farm and other people concerned. Many of the councils guided the agents on overall problems of the county, and many worked on special agricultural, home, and youth problems. Extension agents attended nearly 100,000 meetings with such councils during the year.

Farmer Cooperative Service

Some 3 million individual farmers are members of more than 10,000 marketing, farm supply, and related service cooperatives. The Farmer Cooperative Service helps these co-ops through research and advisory studies and educational activities to improve their usefulness to farmers.

An FCS study of bulk milk handling revealed that individual producers in certain areas received slightly over 12 cents a hundredweight more for milk collected from refrigerated tanks by bulk milk trucks than for that collected in cans. Results of the appraisal have been serving as a guide for many dairy cooperatives—the farmer associations that ship milk for a million farmers in this country.

Another study probed costs of storing grain in out-moded plants. Countrywide costs of marketing all grains in 1954 were believed to have been increased at least $25 million by the use of old and inefficient elevators, many of them more than 30 years old. Building new elevators is, of course, an expensive proposition. This carefully doc-

umented study by the Service measured effects on costs of operation of different elevator sizes and varying volumes of grain handled. This information can help farmers decide whether to build new elevators.

Latest figures show that farmers spend nearly half of their cash farm receipts on supplies used in production. To help them with supply problems, FCS makes many studies. The Service has conducted research and made many spot analyses of what cooperatives are doing in the field of bulk delivery of feed. It has also reported new developments in plant, truck, and farm handling by the bulk method.

To coordinate and assist in developing plans for research on cooperative problems, the American Institute of Cooperation and the Farmer Cooperative Service cosponsored two conferences with land-grant college workers during fiscal 1955. One, held in Washington, D. C. in December 1954, drew representatives from 22 land-grant colleges from all parts of the country. The other was a regional conference at Washington State College, Pullman, in May 1955, attended by representative of the 11 land-grant colleges in the western States. Both of these workshops evaluated research being conducted by the colleges and the Department of Agriculture and problems of farmer cooperatives that need study.

In its educational activities, the Service provides basic information to help cooperatives solve their own problems as they arise. This year, it has continued to provide cooperatives, land-grant colleges, county agents, vocational agriculture teachers, farm organizations, and others with material to carry on their educational work with cooperatives.

The Service also cooperates closely with the American Institute of Cooperation, the National Council of Farmer Cooperatives and the State cooperative councils, and such national cooperative organizations as the National Milk Producers Federation and the National Federation of Grain Cooperatives.

In 1955, the Service again issued basic statistics on farmer cooperatives gathered from its regular annual survey. Ninety percent of all farmer cooperatives in this country cooperated by reporting on their memberships and volume of business, breaking this down by various crops marketed, farm supplies purchased, and services given.

An important event of the year was the completion of a general publication on farmer cooperatives in the United States. It gives a complete picture of agricultural cooperation in this country and it will serve as a primary source of information for cooperative schools, libraries, research workers, and others.

During the year, Farmer Cooperative Service issued 51 bulletins, circulars, and reports based on studies conducted by the staff. These helped cooperatives on such problems as using gin machinery more effectively, pricing milk according to use, kinds and costs of feed bags with advantages and disadvantages of types most commonly used, problems of western cooperatives in obtaining and distributing fertilizers, costs of pelleting feeds, developing butterfat sampling and testing programs, milk distribution costs of Georgia cooperatives, employee incentive plans, and group insurance plans.

Through the News for Farmer Cooperatives—issued monthly—the Service gets out timely information to those who need and use it. Research results and developments of interest are thus made quickly available to cooperative managers and directors, extension and land-grant college personnel, and others who work with farmer cooperatives.

The Service continued to work with representatives from other countries studying agricultural cooperation in the United States under various technical assistance programs. In this part of its work it assisted a total of 306 individuals from 47 different countries.

Agricultural Conservation Program Service

Near Corning, in Nemaha County in northeastern Kansas, an owner-operated farm of 320 acres was badly eroded because of uncontrolled flow of water down its rolling terrain. The soil and water erosion caused severe loss in productivity, a big increase in number and size of gullies, and an increase in the amount of top soil lost through sheet erosion.

For several years the owner-operator has used cost-sharing under the Agricultural Conservation Program in following a planned system of soil and water conservation worked out with the help of Department agencies. Early in the project, a survey showed which practices were needed to protect and improve the land.

Under ACP cost-sharing prior to 1955, this farmer installed 5,275 linear feet of terraces with a cost-share of $155.75; 1,800 linear feet of diversion terraces with a cost-share of $118.56; 9 acres of waterway with a cost-share of $361.20; and a stock water dam of 3,125 cubic yards with a cost-share of $296.96.

In 1955, he installed 3,350 feet of terraces, 1,625 feet of diversion terraces, and a 200 cubic yard soil erosion dam with a total cost-share of $154.67. In addition, he expected to build in 1955 another stock water dam.

This farmer has matched the total cost-share, to date $1,087.14, with about an equal amount in the form of money, work, and equipment. In addition, he has done some work entirely on his own without ACP cost-share assistance. His plan for soil and water resource conservation under ACP is now about two-thirds completed. He expects to maintain all work done under ACP cost-sharing.

Much of the severe gully erosion has been cured, most of the water flow controlled, loss of productive capacity reduced; and his rotation system, in which sweet clover plays an important part, has been improved. His 320 acres now include 70 acres of cropland, 230 of pasture, 10 of farmstead, and only 10 acres still badly eroded.

ACP operates as a farmer-government partnership; both share the cost of carrying out on farms and ranches conservation measures that are essential to the welfare of the country. The program recognizes the responsibility of farmers and ranchers for protecting and improving their land as well as the government's responsibility in the public interest.

In cost-sharing under the 1955 program, farmers and ranchers invested their own money, time, machinery, and labor, amounting generally to more than half the cost. ACP assistance in the form of materials, services, and financial aid averaged about half the actual

cost of installing the conservation measures approved for cost-sharing.

The 1955 National ACP was developed cooperatively by the Agricultural Stabilization and Conservation Committees of farmers, the Agricultural Conservation Program Service, and representatives of Soil Conservation Service, Forest Service, Extension Service, Farmers Home Administration, and others. It was administered nationally by the Agricultural Conservation Program Service.

State and county programs were developed cooperatively by State and county representatives of the above agencies within the framework of the National ACP. The programs were administered by the ASC Committees under the direction of the Commodity Stabilization Service, in cooperation with these agencies, with Soil Conservation Service and Forest Service having responsibility for technical phases of the program in their respective fields.

The 1955 program emphasized cost-sharing with individual farmers to improve and protect the land through practices needed on those farms. However, there were provisions for handling critical community conservation problems that might arise after a county program was developed or for meeting particular conservation problems in a county with practices not included in the National ACP or in the State ACP.

Conservation measures with enduring benefits in the 1955 ACP included those practices primarily for: (a) establishment of permanent vegetative cover, (b) improvement and protection of established vegetative cover, (c) the conservation and disposal of water, (d) establishing temporary vegetative cover, (e) the temporary protection of soil against wind and water erosion, and (f) flexible practices to meet special new or emergency county or regional conservation needs, particularly those arising after the year's ACP has been developed. An example was the group of practices applicable to the wind erosion area.

Farmers are responsible for upkeep and maintenance of practices established under cost-sharing, through the normal life span of the practices and as long as the land on which they are carried out is under the same farmer's control.

The Agricultural Conservation Program is an effective tool for helping farmers and ranchers solve many of their soil and water conservation and land improvement problems. Substantial as these accomplishments are, however, a great deal remains to be done.

Soil Conservation Service

Mr. E. D. of Kemper County, Miss., bought his farm of 136 acres in 1941. It was a hill land farm and more than half the land had been planted to corn and cotton for 50 years or longer. The soil was severely eroded and of low fertility. Mr. D. says he raised about one-fifth of a bale of cotton and 10 bushels of corn per acre the first year he farmed the place, and the small acreage of grassland would not grow grass tall enough to cut for hay.

Mr. D. decided he must change his ways of farming to make a better living for himself and his family. He contacted one of the commissioners of the Kemper County Soil Conservation District, also a farmer in the county, and he signed up with the board of commissioners as a cooperator with the soil conservation district. A soil survey was made for all land

on his farm—the grassland and woodland, as well as land being cropped—by Department soil scientists. Department technicians then helped him make a conservation plan to use each acre within its capabilities and treat it according to its needs for protection and improvement.

It took about 6 years to make the changes needed—planting Sericea lespedeza on much of his sloping hillsides and planting the natural draws to grass—terracing the hillsides he wished to continue in cultivation—each year taking more of his hill land out of row crop cultivation and planting it to grass crops—building up a herd of beef cattle to use the grass—and improving his woodland by selective cutting, fire protection, and other means.

In 1941–42, D. had 75 acres in corn and cotton. His income was about $500 per year. In 1955, he planted only 10 acres to corn and 2.5 acres to cotton, the remainder of his land being in grass or tree crops. His corn yields have averaged about 50 bushels per acre for the last few years, while cotton yields have averaged more than one bale per acre. The remainder of his farm now consists of about 77 acres of improved grassland, 43 acres of woodland, and 4 acres in the farmstead. His farm income for 1955 was about $5,000, mainly from sale of cotton, beef cattle, and grass and legume seed. During the past 10 years, furthermore, he has harvested several thousand dollars worth of pulpwood and sawlogs by making improvement cuttings on his 43 acres of woodland, and he expects to get many other profitable crops from this improved woodland in years to come.

Mr. D. is an ardent advocate of soil conservation, technically planned and applied. He is representative of modern American conservation farmers, who not only farm the conservation way but also encourage their neighbors to do so.

During fiscal year 1955, the Soil Conservation Service gave technical aid and other assistance to 2,667 soil conservation districts and more than one million farmers and ranchers. Scientific soil surveys were made on more than 31 million acres of farm land, and range surveys on an additional 10 million acres. Basic conservation plans were developed, in cooperation with farm and ranch operators, on 78,253 farms and ranches covering about 23 million acres, and basic conservation plans were revised on another 7,000 farms that included nearly 3 million acres. In addition, group drainage plans were made for 1,856 groups of farmers for more than 2 million acres, while 693 group irrigation jobs covering more than 1 million acres were planned.

Service technicians also supplied technical aid to farmers and ranchers in applying many of the conservation practices that required special technical skill. Some of the more commonly used practices applied by cooperating farmers during the year include: contour farming, 3,146,889 acres; cover cropping, 4,506,673 acres; strip cropping, 947,611 acres; seeding of pastures and ranges, 3,134,643 acres; improvement cuttings on woodlands, 1,198,793 acres; terracing, 45,806 miles; waterway development, 73,888 acres; and the construction of 86,574 farm and ranch ponds.

About 28,000 people live in the 49 square mile Upper Hocking watershed in Fairfield County, Ohio. The city of Lancaster lies on the banks of the Upper Hocking River where it is joined by Hunter's Run. Floods of varying degrees, occurring year after year on these streams, aroused townspeople and farmers alike. In 1953, the supervisors of the Fairfield Soil Conserva-

tion District took the lead in sponsoring a watershed protection program. They asked the Department of Agriculture to help them, and in September of that year the Upper Hocking watershed was designated as one of the small watersheads on which the Department agreed to cooperate as a demonstration area.

The Hunter's Run Conservancy District was organized under Ohio State law to aid the soil conservation district in carrying out the plan. The Upper Hocking plan was completed in 1954. It calls for managing all water from the time the raindrops strike the ground until the water flows past Lancaster on its way to the Ohio River. Conservation practices on the land are teamed with structures in the small tributary streams to control the water. In addition to conservation land treatment the Upper Hocking plan calls for 9 floodwater retarding structures, 72 sediment control structures, 24 miles of waterway improvement, and more than 5 miles of stream channel improvement.

During fiscal 1955, two of the dams on Hunter's Run were completed, and several others were in process of construction. SCS conservationists in the area report that there has been a substantial increase in the rate of conservation treatment of farm land during the past two years. The people of the Upper Hocking watershed and the Department of Agriculture plan that the entire watershed protection program for this area will be completed by 1959.

Fifty-seven small watersheds similar to the Upper Hocking now serve as pilot demonstration areas. Plans were completed on 44 of these watersheds in fiscal 1955. During the year subwatershed work plans were also made for 79 similar sized subwatersheds authorized under the flood control act of 1944. Work plans were also developed for 106 small watersheds as a part of SCS regular assistance to soil conservation districts. Another 68 small watersheds were authorized for planning, and technical aid was started under provisions of Public Law 566 enacted by Congress in 1954.

Some of the accomplishments in the flood prevention and watershed protection programs for the year include: completion of 129 floodwater retarding structures that have a combined storage capacity of about 90,000 acre feet, installation of 1,082 sediment control structures, 212 miles of stream channel stabilization and improvement, and 425 miles of roadside erosion control.

During the year 20 States enacted 37 pieces of legislation in the field of watershed protection and flood prevention. This indicates that the Department of Agriculture and other Federal agencies concerned with watershed protection and flood prevention may, in the future, receive more and more cooperation from the State governments and local agencies in carrying out this vital program.

Forest Service

The National Forests

For 3 years, Arkansas and Oklahoma had continuous drought. Among farmers who were hard hit were small landowners in the neighborhood of the Ouachita National Forest in west central Arkansas.

Last year the Forest Service allocated $13,000 of emergency funds to the Ouachita to help meet drought distress. The money was used to augment the normal timber sale program of the Forest Service by working up a

number of additional small sales to local farmers in need of cash and employment. The sales were mostly of low-grade stumpage that could be cut in thinning dense stands of second-growth pine.

By the time the $13,000 was used up, 158 separate sales had been made, from which the Forest Service realized an income of more than $63,000. As in the case of all national-forest receipts, 25 percent of this went to the local counties for road and school funds; and an additional 10 percent was to be used for construction and maintenance of local roads. This left a net of $41,000 to be deposited in the United States Treasury.

The timber products harvested amounted to 8½ million board feet. Cutting, hauling, and processing these products brought in some $265,000 to the local people. In connection with the sales of the timber, the Forest Service collected some extra funds for road improvement and timber stand improvement work, and this provided many hundreds of additional man-days of labor. All this, plus the 25 percent return for county roads and schools, totaled about $320,000 additional income for the local drought-stricken economy.

During fiscal year 1955, the national forests supplied a record total of 6.38 billion board feet of timber to help meet the country's needs for forest products. Receipts from the sale of timber totaled $70,760,440, also a new record.

National forest timber is sold on the stump; the buyer does the cutting. All cutting must be done in accordance with management plans that provide for continuous production of timber from the forest.

Preliminary award of a 50-year contract for 7½ billion board feet of timber in the Tongass National Forest, Alaska, was made in August 1955 to a subsidiary of the Georgia Pacific Plywood Co. The awardee plans to construct a newsprint plant of 500 tons daily capacity in the Juneau area. This was the third large pulp timber sale made by the Forest Service in Alaska in line with its policy to encourage industrial development in the Territory. Final award of a contract for 3 billion board feet in the Wrangell area was made during the year, the preliminary award having been made in 1954. The purchaser plans to build a sawmill, plywood mill, and small pulp mill.

In the summer of 1955, about 2¼ million acres in Idaho, Montana, New Mexico, and Oregon were airplane-sprayed for the control of epidemics of the spruce budworm. Control work to combat heavy infestations of spruce bark beetles was carried on in national forests of the northern and central Rocky Mountain regions. Major control projects also were under way against the southern pine beetle in Mississippi, Alabama, North Carolina, and Tennessee. State and private agencies cooperated with the Forest Service in these projects, which involved both national-forest and State and private lands.

Treatment to increase the timber growing stock or to improve its quality was carried out on nearly a million acres. This treatment included: tree planting on nearly 55,000 acres of cut-over, denuded, or understocked lands in the national forests; seed bed preparation on 99,800 acres to facilitate natural restocking; timber stand improvement on 344,400 acres, such as thinning and removal of weed trees; pruning of crop trees on 136,200 acres to obtain better quality timber; control of hogs, rodents, and other destructive animals on 351,000 acres.

The Forest Service operated 12 forest tree nurseries. Their total production was about 78 million trees, of which 37 million were planted on national forest lands, and the remainder furnished to other Federal and State agencies under cooperative agreements.

On national forest ranges, 1,108,794 cattle and horses and 2,911,373 sheep were grazed under paid permit in fiscal year 1955. Receipts from grazing fees were $2,953,700.

Range improvements during the year included reseeding of 54,152 acres, bringing the total area reseeded to date to about 605,000 acres.

The Forest Service fought 9,976 fires in the national forests during fiscal 1955. Some 204,000 acres were burned, considerably less than the annual average of 285,000 acres for the preceding 5-year period. The Forest Service's new Aerial Fire Depot near Missoula, Mont., for which Congress granted a special appropriation of $700,000, was completed and put in operation.

The use of the national forests for recreation continues to increase. There were 40 million recreational vists in calendar year 1954 (including 11 million by hunters and fishermen), an increase of 5 million over the preceding year and more than double the total for 1946. The Forest Service continued to expand its cooperative work with the States for the management of the wildlife resources of the national forests.

Mining claims on national forest lands reached a peak of 166,000, covering 4 million acres, as of January 1, 1955. Largely due to the uranium boom, claims were being filed at the rate of some 5,000 per month. Public Law 167, 83d Congress (July 23, 1955), is one of the most important conservation measures affecting public lands and a large step toward preventing abuses of the mining laws and interference between mining claims and the management of national forest resources.

As of June 30, 1955, approximately 7,170,000 acres of land under Forest Service jurisdiction were under lease for the production of oil, gas, and certain other minerals. Over 54,000 permits authorizing other special uses of national forest lands, such as for airports, telephone lines, radio and TV sites, schools, resorts, and summer homes, were in force in fiscal 1955. The Service charges appropriate fees for such uses; receipts in fiscal year 1955 were $911,548.

The most valuable service of many of the national forests is the protection of watersheds. Watershed values are considered in timber management, recreation, and all other uses of national forest lands and many special watershed improvement projects are undertaken. The Forest Service worked out a cooperative program with the city of Corvallis, Oreg., for the protection of that municipality's water supply in conjunction with logging operations on national forest lands. Another cooperative agreement is being developed with the city of Everett, Wash., covering the use of national forest lands for municipal water supplies.

The Forest Service provided normal maintenance on 75,750 miles of roads and 117,400 miles of trails, which comprise its maintenance system (national forest roads maintained by States, counties, and timber purchasers not included).

The Service completed and released to the Geological Survey for drafting and publication topographic mapping of 813 square miles

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of national forest lands. At the end of the fiscal year, topographic maps of suitable accuracy were available for slightly less than 21 percent of the coverage needed.

As of June 30, 1955, the area of 149 national forests and the related lands under administration of the Forest Service was 181,002,248 acres. Several national forests were consolidated and other extensive rearrangements of national forest boundaries were made through interforest transfers in several regions.

Lands administered by the Forest Service produced a cash income of $81,137,294 in the fiscal year 1955, the highest year's receipts on record. This compares with $68,992,686 for 1954. Approximately 65 percent of national forest receipts is credited to the general funds of the United States Treasury. Twenty-five percent is paid to the States, to be distributed to the counties containing national forest lands for local road and school funds. Ten percent is apportioned for road and trail construction and maintenance in the national forests. Other smaller amounts are distributed or placed in suspense accounts in accordance with special acts of Congress.

Expenditures for protection, management, and development of the national forests amounted to $76,650,000. This included both operating expenses and capital expenditures such as road construction, but not the 25 percent payments to the States.

Cooperative Work With the States

Before accepting any offers for the timber on his place, a landowner near Polkton, N. C., sought the aid of the timber management services provided by the North Carolina Forest Service, with the cooperation of the USDA Forest Service. A service forester advised selecting and marking the trees to be cut. He spent 2 days helping the owner mark the trees. The landowner, as a result, made $820 more than the highest previous offer he had received. And he still had left on his land a good stand of straight, fast-growing trees ranging in size from 10 to 16 inches in diameter. Getting more money for fewer trees seems like good business to him. "No more timber will be sold from my place except by the system of selecting and marking the trees," he said.

Over the country similar on-the-ground technical aid is being given to farmers and other owners of timberland and operators of small sawmills and other wood processing plants through Federal-State cooperation. Thirty-eight States took part in this program during fiscal 1955 and three more States—Montana, Pennsylvania, and Utah—planned to join the cooperative program in fiscal 1956.

Under provisions of the Clarke-McNary Law of 1924, the Department cooperated with 43 States and the Territory of Hawaii to provide systematic protection against fire for State and private lands. Cooperative protection was extended during fiscal 1955 to 4 million more acres, bringing the total area covered to 383 million acres. Some 49 million acres of State and private forest and watershed land, however, still remain without organized protection against fires. In 1954, 12 percent of the unprotected area was burned, compared with 0.7 percent of the protected area.

North Dakota has enacted legislation and submitted an agreement for cooperation in forest fire control under the Clarke-McNary law and will be the 44th State in the cooperative protection program.

In cooperation with State agencies, counties, townships, protection associations, lumber industries, and woodland owners, the Department continued its program of control work against the white pine blister rust. The disease is now under control on 17 million acres, or 73 percent of the control area of 23 million acres. Control was established on 524,367 acres in fiscal 1955. Severe damage from blister rust is taking place in white pine stands where control has not yet been established. The situation is particularly critical in Idaho.

The Forest Service receives thousands of requests each year for help in solving specific forest management problems. Most of these can be taken care of with materials already prepared or through the Federal-State cooperative services. Others, coming from State foresters, consulting foresters, forestry schools, large industrial forest owners, and other Federal agencies, often involve highly technical matters. These are dealt with through a program of general forestry assistance which is intended to aid in the solution of unusual forest management problems and in the development of advanced forestry techniques. During the past year technical assistance on timber inventory and management planning was given to four large forest owners in Vermont. In Milwaukee, the Forest Service held a conference attended by some 50 foresters from various parts of this country and Canada to discuss a continuous forest inventory method.

During the past year the Forest Service cooperated with 43 States, Hawaii, and Puerto Rico in the production and distribution of trees at low cost to farmers and other landowners. The 1955 distribution from the State nurseries amounted to approximately 475 million trees, enough to plant about 475,000 acres.

The naval stores program provides conservation assistance to gum turpentine farmers in the southeastern States. In the 1954–55 season, 2,500 producers, respresenting about 80 percent of the total production, participated in the program. The program has resulted in the adoption of chemical stimulation and other improved practices.

Participation by the Forest Service in the flood prevention activities of the Department of Agriculture included work on a number of flood prevention surveys and improvement work on authorized projects. With staff personnel or through the State foresters, the Service took part in the field examinations of a high percentage of the watersheds for which applications were received under the Watershed Protection and Flood Prevention Act of August 4, 1954. In the second year of the Hope-Anderson watershed demonstration program, the Forest Service participated in improvement work on 49 of the 58 active projects.

Seven emergency flood prevention projects involving national forest lands were completed—6 in California, on watersheds damaged by fire; and 1 in New Hampshire, the result of hurricane "Hazel." Emergency treatment included seeding 18,700 acres of critical flood-source lands, construction of diversion ditches, stabilizing eroding logging roads, and cleaning debris from stream channels.

The land treatment phases of a demonstration watershed project in New Mexico had their first test in the summer of 1955 when rains fell with intensities up to 5.1 inches per hour. While watersheds north and south of the treated area spewed floods and debris into the valley and caused more than a million dollars damage, no flood flow came from the treated watershed.

Forest Research

The Forest Service's research program is conducted through nine regional forest and range experiment stations, a research center in Alaska, a tropical forest research center in Puerto Rico, and a national Forest Products Laboratory in Madison, Wis. Under each of the regional experiment stations several research centers work on problems concerned with particular forest types. Many projects are conducted with the cooperation of State and local agencies, private organizations, and forest industries.

A new forest research center at Rapid City, S. Dak., will concentrate on the problems of forest utilization and multiple-use management in the ponderosa pine type of the Black Hills.

Research in tree improvement was stimulated by the establishment of the Southern Institute of Forest Genetics in Mississippi.

The most ambitious cooperative field project so far undertaken in forest fire research was carried out in California during the year. This project "Operation Firestop," pooled the interests not only of forest fire-fighting agencies but of municipal fire departments and of the Civil Defense Administration and Department of Defense. Activities included introduction of new chemical methods, tests of mass water drops from aircraft and facilitating tactics by helicopters, and studies of the fire convection column.

The President's Weather Control Advisory Committee visited "Skyfire," the Forest Service's cooperative project for the study of lightning storms under way in northern Idaho and western Montana. Objectives of the study are to develop scientific knowledge of the genesis, place of origin, and life history of fire-setting lightning storms and to determine the feasibility of reducing the number of forest fires they start, by use of cloud-seeding techniques.

The following are a few of the more important results obtained through Forest Service research:

A method of cable logging originally developed for the Swiss Alps is being tested in the Fraser Experimental Forest in Colorado. The system allows logging with a minimum of road construction, soil disturbance, and damage to residual stand.

Studies in a young (38-year-old) Douglas-fir stand showed that as many as 25 cords per acre could be taken in thinnings and still increase board-foot growth and concentrate it on quality trees. Light thinnings at 6-year intervals have returned $25.05 per acre. The studies showed that 90 percent of natural losses can be salvaged at a profit in 60-year-old stands.

Experiments in Oregon showed that brush fields can be prepared for tree planting, at moderate costs, by aerial application of 2,4–D. Tests of scrub oak control in the Lake States were successful with aerial applications of 2,4,5–T.

Southern Appalachian farm woodlands can return $3 per acre per year while the woods are being built up to a more productive and healthy con-

dition by improved cultural methods. Returns were $10 per acre if the farmer did his own woods-work and $15 if he hauled his product to the market.

Agricultural Monograph 18, "Planting the Southern Pines," issued during the year, gives comprehensive information, developed through many years of research, on all phases of planting southern pines from seed collection to plantation care.

Grazing-watershed studies on ponderosa pine-bunchgrass ranges in Colorado showed the harmful effects of grazing more than 50 percent of the grass herbage as is customary. Moderate grazing (35 to 40 percent) improved the vegetation, reduced water infiltration into the ground by only a quarter, and resulted in a much higher average dollar return per section.

In tests in Louisiana and Georgia, seeded and grazed firebreak strips effectively resisted the spread of surface fires. Increased grazing returns may more than pay the costs of establishing and maintaining the firebreaks.

Studies in the Missouri Ozarks are showing possibilities for integrating timber production and livestock grazing and for resolving conflicts between these uses of forest land.

Cooperative research in range management was started in southern Florida to develop fundamentals for the best management for timber and forage production on forest lands.

There was significant progress in watershed management research. A study of central Arizona indicated that erosion from high sediment-producing granitic-soil areas can be effectively controlled by mulching and seeding to grass. One year after deteriorated areas above Roosevelt Reservoir were treated, summer sediment yields had dropped 99 percent.

With the establishment of the Hubbard Brook Experimental Forest in the White Mountains of New Hampshire, watershed management research was inaugurated in the New England area. The White Mountains are the headwaters of the Merrimack, Saco, and Androscoggin Rivers and part of the Connecticut River. These are the main sources of New England's industrial and domestic water and hydroelectric power. They are also the main flood-producing rivers of the region.

Good progress was made also in research on forest insects and diseases. An improved method was developed for control of the Putnam scale on American elms. Aerial surveys proved an effective aid in the detection of Engelmann spruce beetles. A new system was developed for sampling spruce budworm populations to determine amount of infestation; it reduces by 42 percent the time required by previously used sampling methods.

Forest insect researchers devised a mist-blower nozzle system that permits more adequate spray coverage of tall trees than had been possible with systems used on conventional mist blowers.

Experiments in forest disease research revealed definite indications that there are strain differences in the white pine blister rust fungus. This discovery will influence control practices, as well as genetic work in developing rust-resistant pines.

A simple means was developed for detecting incipient stages of decay caused by the fungus *Peniphora gigantea,* an important cause of early storage decay in southern pine poles, posts, and pulpwood.

It was found that a borax and boric acid solution retards decay beneath aircraft carrier decks. Pentachloraphenol added to the bilgewater

of stored wooden naval vessels is effective for many months in preventing fungus growth.

The Forest Products Laboratory has made exhaustive studies on the gluing of treated lumber. The Navy has started construction of the first minesweeper to be built of members laminated from preservatively treated lumber. Use of such treated wood should double or possibly triple the life of wooden vessels.

Tests showed that low-grade lumber can be used to produce high-grade material for house siding and for interior use, such as shelving and cabinet partitions, by overlaying it with resin-impregnated paper. A low cost, easily installed wood flooring material has been developed, made from hardwood veneer and processed in a special drying process that makes it flexible and gives it good dimensional stability.

Development of a wood fiber building board that filters poison gases, disease-laden particles, and radioactive fallout of atomic explosions was announced jointly by the Forest Service and the Army Chemical Corps.

In 1955 further progress was made on the nationwide forest survey to determine the character and condition of forest land, the volume and quality of standing timber on it, the growth and cut of timber, and the country's prospective requirements for timber products. The survey covered an additional 39 million acres of forest lands during the year. The survey has now covered at least once a total of 478 million acres—75 percent of the total forest area in the United States, and more than 90 percent of the country's commercial forest land.

Marketing investigations included studies of primary timber markets in Kentucky and Iowa, made in cooperation with State forestry agencies. A study of the wooden pallet industry was made in Minnesota to appraise the possibilities for developing new markets for low-grade hardwoods, a great need in many parts of the East.

Timber Resource Review

The Forest Service in 1955 announced the results of the Timber Resource Review—a comprehensive study of the extent and condition of the forests throughout the country, rates and trends in timber growth, and the amount of growth that will be required to meet prospective demands for timber in the future. The study brought up to date information obtained in earlier appraisals of the forest situation in the United States.

The Timber Resource Review indicated that we shall need all of the forest land we now have; and further substantial reductions in the acreage of land devoted to timber crops may adversely affect future timber supplies.

Insects, diseases, fire, and other destructive agents each year kill an amount of sawtimber equal to one-fourth of the annual growth. Much progress has been made in the prevention and control of fire. If the toll of insects and diseases can be similarly lessened, it will contribute substantially toward the growth needed to meet future demands for timber.

Greatest possibilities for adding permanently to timber supplies lie in improving the stocking on the one-fourth of the Nation's commercial forest land that is poorly stocked; in obtaining sufficiently prompt and adequate restocking on cutover areas so as to maintain

their productivity; in realizing the growth potential of the 50 million plantable acres; and in reducing the loss due to insects, diseases, and fire. The heart of the problem lies with the millions of farm and other (mostly small) private holdings.

MARKETING AND FOREIGN AGRICULTURE

Agricultural Marketing Service

Food Distribution Programs

The year's highlight in the field of food distribution was the Special School Milk Program authorized by the Agricultural Act of 1954. Over 41,000 schools participated—more than 7,000 were schools that previously had not had a milk service. Nearly 9 million children took part and milk consumption was increased by over 450,000,000 half pints.

In Sheridan, Wyo., a city of about 12,000 people, prior to the Special School Milk Program, 38 producers could sell only part of their milk at grade A prices. In fiscal 1955, 44 producers in the area sold all of their output at grade A prices from October through May.

An elementary school teacher in Minnesota wrote about some of the results of the program she had observed. "I made a chart," she wrote, "keeping a record of their marks, and actually we found that children's marks had greatly improved after they had been drinking milk. We compared our attendance record and found it is much better than last year. We had very little sickness this year."

The National School Lunch Program reached 11 million children, an 8 percent increase over the previous year. Participating schools spent $323 million in local markets for food used in the program. In addition a large volume of surplus foods was made available for school lunch use.

The Department's surplus food donation program moved over a billion pounds of surplus foods into consumption channels. Nearly half was made available to school lunch programs, charitable institutions, and needy persons in this country. The remainder, 546,000,000 pounds, was made available to needy persons overseas through the facilities of United States private welfare agencies and such international organizations as the United Nations Children's Fund.

The year brought greatly increased industry interest in the plentiful foods program. Special merchandising and promotion campaigns were conducted on pork, dairy products, canned sweet corn and snap beans, and eggs. An outstanding campaign was conducted on beef and vegetables, with the full cooperation of these industries and allied trade groups.

Marketing Agreements and Orders

Eight additional milk marketing orders (raising the total to 58), and 4 additional agreements and orders for fruits and vegetables (increasing the total to 30) were put into effect during the year.

Marketing agreement and order programs, established under authority of the Agricultural Marketing Agreement Act of 1937, as amended, seek to establish and maintain orderly marketing conditions for certain commodities and their products.

In the Lodi district of California, growers of the prized Flame Tokay grapes have only about 45 days to market their fresh Tokays before the fall rains begin. A Federal marketing agreement helps them achieve maximum movement of their product to the Eastern markets in an orderly manner.

One of the pioneer vineyardists in the area says: "Before the industry adopted a Federal marketing agreement, growers rushed their grapes to market as fast as they could be harvested, and a glut inevitably developed. The result often was that growers lost, during the latter part of the shipping season, as much as they had gained earlier. There was no quality control, and no basis on which to maintain trade confidence through orderly marketing.

"Under the marketing agreement, the industry now is able to ship about 4,500 carloads of grapes in a season compared with an average of less than 3,000 previously."

One of Georgia's leading peach growers says: "Without the Georgia peach marketing agreement and order program, the value of our orchard investment would depreciate considerably.

"This agreement helps protect the market against gluts of inferior fruit, which tend to depress prices for the better quality fruit. The net result is a high-quality fruit for the consumer, and better or stable prices for our Georgia growers."

New fruit and vegetable programs put into effect in fiscal 1955 applied to California dates, California dried figs, Florida limes, and Maine potatoes. A decision was pending at the close of the year on a proposed program for Florida tomatoes and celery. Other commodities for which producer and industry groups were showing interest in the development of new programs include sour cherries, cranberries, grapefruit for canning, mangoes, and hops.

This year's expansion in the use of milk marketing orders probably was the result of the generally heavy supplies of milk throughout the country, with consequent pressure on local marketing institutions. Most of the new orders were for areas which had been short of milk until modern transportation and handling methods permitted milk to be hauled long distances. The institution of the Federal orders helped to stabilize local market conditions by requiring handlers and importers of milk to pay all producers of milk the same minimum prices, subject to appropriate location adjustments.

Regulatory Acts

A shipper of Yuma, Ariz., consigned five cars of cantaloups to a St. Louis produce company early in 1953. In February he complained to the USDA Regulatory Office that he had received less than the reported market prices. An investigator visited the company's headquarters in St. Louis in May and in 3 days found evidence that this shipper, and others as well, had been underpaid.

On the strength of a 2-week spot check of the produce firm's accounts, the regulatory office demanded that the company engage an independent auditing firm to make a complete audit of its books for 2 years, beginning with March 1952. The audit revealed that the company had defrauded 93 growers and shippers in 10 States of approximately $38,000 on 70 different shipments.

At the insistence of the regulatory office, the company made full restitution to each of the 93 shippers. A check for $255.43 went to the Yuma, Ariz., shipper for the balance due on his five cars of cantaloups.

The partners of the produce firm were suspended for 90 days from all trading in fruits and vegetables, and were faced with prosecution for violating the Perishable Agricultural Commodities Act.

The Perishable Agricultural Commodities Act provides for licensing fruit and vegetable dealers, and assists in settling disputes between shippers and receivers. It seeks, also, to prevent the misbranding or misrepresenting of produce to the detriment of the industry. More than 26,800 licenses—a new high record—were in effect in 1955. Reparation payments totaling 1 million dollars were made in amicable settlements, and nearly 250,000 dollars in reparation awards were paid under formal proceedings.

The Packers and Stockyards Act gives the Secretary of Agriculture jurisdiction over the facilities and services, rates, and business practices of meat packers, stockyard companies, market agencies, and dealers operating at public stockyards, and live poultry dealers and handlers in cities designated by the Secretary as coming under the act. At the end of fiscal 1955, a total of 335 terminal stockyards and livestock auction markets was posted (an increase of 13 from a year earlier), and 16 cities were designated as live poultry markets (no increase from a year earlier), under the act.

The Federal Seed Act requires that seed shipped in interstate commerce be labeled with descriptions of its quality, and prohibits false labeling and false advertising. More than 1,200 investigations of alleged violations of the act were completed during fiscal 1955. Warnings were issued in more than half these cases, and a substantial number of cases were cited for hearings. Criminal actions were recommended in some instances and some criminal actions were instituted. In addition, approximately 120 million pounds of seed valued at 13 million dollars, offered for importation, were tested under the foreign commerce provisions of the act.

Market News Service

A livestock feeder in Rock County, Ill., says: "We listen to market reports over the radio every day. I like to keep up with trends in prices.

"The first two lots of cattle I sold this fall, I pushed up to about 1,300 pounds, because a year ago the market was paying a premium for heavy cattle. But too many others had the same idea and now heavy cattle are selling at a discount. I have a couple hundred more cattle still to come to market, and I plan to finish them out at about 1,100 to 1,220 pounds. What made me change my plans? I told you, we listen to the markets every day over the radio."

"I don't know how the growers and I would get along in our business without these daily market reports," says an Auburn, Ga., producer, whose broiler operations extent from the initial production of eggs for baby chicks from a flock of 3,500 breeder hens on through the weekly output of 8,000 finished broilers on the farms of 25 to 30 cooperating growers.

"Every day the growers and I turn an ear to the radio for the latest market information. For example, we use the price information for figuring the settlement due to the growers on the birds they have just sold. Then the following day we confirm our figures by checking the official daily market news report that we get from the Atlanta market news office by mail."

The Federal-State market news service was improved and extended to provide wider coverage in nearly all commodity groups during fiscal 1955.

The cotton market news service was extended from 10 markets to cover 14 spot cotton trading points. Greenville, S. C.; Greenwood, Miss.; Lubbock, Tex.; and Fresno, Calif., were designated as additional bona fide cotton markets.

Dairy and poultry market news was expanded and improved to keep abreast of industry changes in processing, packaging, and marketing practices. Dairy and poultry reporting on a Federal-State cooperative basis was started at Jacksonville, Fla.; Lincoln, Nebr.; and Hartford, Conn.; also state-wide coverage for Ohio was begun.

Federal participation in livestock reporting at Houston, Tex., was reestablished on a Federal-State cooperative basis. Reporting of range sales of livestock was expended in the Texas panhandle and northeastern New Mexico as well as at Denver; San Francisco; Spokane; Billings, Mont.; and Fort Worth, Tex. Livestock reporting on a Federal-State cooperative basis was extended to Lancaster, Pa.; Tulsa, Okla.; and Visalia, Calif.; and meat reporting, financed federally, at Portland, Oreg.

New and improved services on fruits and vegetables inaugurated during the year included extending the services at Phoenix, Ariz., to a full seasonal operation with more effective service to an expanding citrus industry; the moving of the Payette, Idaho, office, covering potatoes, onions, and prunes to Caldwell, Idaho, where it is more centrally located to serve the industry more effectively. Reports on truck receipts were started in 9 additional markets and reports in 3 other markets were expanded and improved.

Services were developed and strengthened for reporting prices and market data on grain for local areas, particularly in Arkansas, Louisiana, Maryland, North Carolina, Texas, and Virginia. Rice reporting, financed cooperatively with Arkansas, Louisiana, and Mississippi, was started. Additional data improved the grain market news report.

The market news service on tobacco was extended to include Alma and Pearson, Ga.; Henderson, Ky.; and Gate City, Va. Service was discontinued at Scottsville, Ky. About 80 percent of the market news reports were furnished directly to growers for use at the time their tobacco was offered for sale.

The rate of speed on the USDA teletype circuit between Kansas City and San Francisco was increased from 75 to 100 words per minute and trainee and relief reporters were added at several markets.

Inspection, Grading, and Classing

"I wouldn't be without it," says a cotton farmer in Kaufman County, Tex., speaking about the cotton classing service offered to farmers by the United States Department of Agriculture under the Smith-Doxey program.

"With my green card I know exactly what grade my cotton is and just about what price it should bring.

"Most buyers will not bid on a bale of cotton unless it has been classed. Even if a buyer does make an offer, 9 out of 10 farmers won't be satisfied and won't sell a bale until it is classed. A farmer who has his cotton classed is in a much better bargaining position."

Additional cotton subclassing offices were established during the marketing season at Hattiesburg and Prentiss, Miss.; and Pecos, Tex. Local people provided the cost of the necessary office space and physical equipment. A seasonal suboffice also was established at Waco, Tex.

"I couldn't even sell my eggs if we didn't have an egg grading program here," says a poultryman near Jacksonville, Tex., who sells in a large city a hundred miles away.

"Everyone around here has some eggs to sell, so you can see how impossible it would be to find a local buyer for eggs at any price."

His county agent says: "We have actual figures to show that the farmers in this county received $70,000 last year (1954) in additional income over what the eggs would have brought on current receipt basis."

A turkey grower near Shawnee, Okla., goes all out for selling his birds on graded basis. "I like to think I grow a better turkey than the average bird going to market," he says. "I never rush my turkeys to market, but wait until I've put a prime finish on them. I want to be sure to get the 2 or 3 cents a pound extra reward that this prime finish will bring. And the best way for me to get this reward is to sell my birds on a graded basis."

The continuing demand for Federal poultry inspection has resulted in 24 new plants initiating use of inspection service, making a total of 262 using this program. The grading programs during the year showed an increase in the volume graded, both for egg products and poultry.

Tobacco inspection services were maintained on all of the 174 established auction markets. All tobacco sold at auction was Federally inspected.

Requests for Federal grading of meats continued at a very high level, as did inspection and grading activities on dairy products.

In the Grain Division, the total number of inspections and quantity of commodities inspected under the permissive inspection authority was much greater than in 1954. The quantity of rice inspected doubled that of the previous year, and the inspection of miscellaneous commodities (flour, cereal products, vegetable oil, etc.) for compliance with contract specifications was greater than for any fiscal year since 1949.

The volume of fresh fruits and vegetables inspected was the third largest on record, but slightly below 1954. A fresh fruit and vegetable inspection service was set up in Cuba to inspect exports of potatoes and avocados to the United States and Puerto Rico.

During the year many State purchasing agencies showed increased interest in obtaining USDA inspection on processed fruits and vegetables. The service on in-plant inspections contained to expand and the number of plants approved to pack under continuous inspection totaled 163 compared with 146 a year earlier.

Standardization

Changes in styles and methods of packing and marketing fresh fruits and vegetables, development of new varieties, and the discovery of new insect pests and diseases resulted in a heavy demand for service in standardization, and made it necessary to analyze and revise existing standards frequently.

New standards were issued, and many old ones revised or amended, for canned, frozen, and dried fruits and vegetables, sugar products, and miscellaneous processed commodities.

New provisions were added in the sanitary and operating requirements with respect to chilling and freezing of poultry products, drainage of poultry prior to packaging, and the lining of containers. Standards and grades for shell eggs were revised, the principal change being the elimination of stained eggs as a separate quality classification and including such eggs in other grades.

Standards for grades of Cheddar cheese were revised, and requests were received for the development of standards for dry whey and lactose.

Considerable progress was made in the physical and chemical investigations on all tobacco standards.

A physical form standard for Good Middling White cotton became effective on August 1, 1954, superseding the descriptive standard previously in effect. The field trial for spotted cotton standards in physical form was officially extended from June 1954 to April 1956 to provide a longer period to observe and test the boxes. The purpose of the field trial is to determine the practicability of replacing existing descriptive standards for spotted cotton with physical form standards.

The soybean industry asked that the maximum limits for foreign material in each grade of the United States soybean standards be reduced. Hearings were held, and it was finally decided that the amount of foreign material permitted in the several grades would be lowered.

Standards for slaughter barrow and gilt hogs were revised and new grade terminology adopted. In answer to increased requests to place grade identification on retail cuts of meat, an intensive study was made of the feasibility of this service and techniques of application are being developed.

The development of Federal specifications covering meat and meat products for use by Federal agencies in their procurement programs was another active phase of the standardization work in the past year. The development of objective standards for grades of grease wool received major emphasis during the year and resulted in a proposal for new standards.

Agricultural Estimates

Crop and livestock reports issued by the Agricultural Marketing Service cover almost every phase of agriculture.

An Indiana farmer who has been a voluntary crop and livestock reporter for 25 years, says, "I place a lot of reliance on what the USDA production reports say." He explained, "The reports in 1954 indicated that hog numbers were increasing and that prices probably would go down in 1955." He reduced his hog operation and he made some reductions in cattle feeding, based on USDA reports. He concluded, "My returns were very satisfactory."

A California poultryman says, "The USDA chick hatchery reports provide the best indication of what egg prices will be 6 months in the future." A turkey grower, commenting on the turkey hatchery report, says, "Turkey growers must have this type of information from the Crop Reporting Service if they are to make intelligent production plans."

Another farmer adds, "You may be sure that if a grower does not receive the information by direct mail from the Crop and Livestock Reporting Service, he gets it from some segment of the industry with which he deals."

The AMS inaugurated summer potato crop estimates in eight additional States at the request of growers. And, because of the difficult marketing problems connected with the potato crop of 1954 and the tremendous interest in supplies of storage potatoes, the January 1 stocks report was supplemented by two additional stocks reports as of February 1 and March 1.

The quarterly cattle-on-feed reports covering 5 important States were expanded to cover 9 additional States in January 1955. The States covered now account for 90 percent of the cattle feeding done in the United States.

The chick placement reporting service was extended to six other important broiler producing States. Weekly chick placement reports now cover 22 States reporting 87 percent of the commercial broiler production in the country.

The quarterly pig report which was started in 1954 in cooperation with 6 North Central States was expanded during fiscal 1955 by the addition of three States. The nine States now working together on this program account for about 75 percent of total pig production.

Major improvements were made in the design of crop and livestock reporting questionnaires sent to farmers. One such improved questionnaire, when tested in three States, brought in about 25 percent more answers from farmers than the old type. A changeover is being made generally through the Nation.

Added emphasis was placed on the research program to explore and develop improvements in crop forecasting and estimating procedures.

Plentiful supplies of a number of crops and of livestock made growers acutely conscious of the importance of the supply situation and of the part the official government (USDA) estimates play in keeping growers, buyers, and distributors informed.

Farmers who are making special efforts to solve their marketing problems by the use of marketing agreements look to the Department for additional and more accurate information on supplies.

The serviceability of the statistical reports is contingent on a better understanding of the problems and cooperation of the growers and other segments of the industry in furnishing information for the preparation of the reports.

As one magazine of nationwide circulation pointed out, "The Crop Reporting Board is held in high esteem by those who knew the difficulties of the enterprise. Yet it deserves greater understanding and appreciation by the country at large, for the ultimate beneficiary of the drama witnessed in Washington is the consumer."

Marketing Research

At the close of the 1955 fiscal year, AMS was conducting marketing research under 350 projects.

Development of the mechanical aeration system for grain has aroused tremendous interest. Wheat in storage historically has needed periodic "turning" to cool and ventilate it. Turning can be done by hand or by mechanical equipment. Both methods involve passing the wheat through air.

Marketing research has now developed equipment and techniques to cool and ventilate grain, using fans to draw air through the wheat. Mechanical aeration has been successfully used to cool wheat in silo-type storages, with grain 150 feet deep, at a cost of about 40 percent that of the turning technique. It has also been used in farm-stored grain, at CCC bin sites, in grain stored in ships' holds, and in commercial elevators.

Recent tests have demonstrated that fumigants can be uniformly distributed through a mass of grain by so adapting mechanical aeration systems as to recirculate the fumigant. Uniform distribution lowers cost; permits the use of fumigants previously not widely used for bulk grain; provides greater safety because the grain is fumigated and aerated in a closed system as part of the treatment; and affords a higher degree of insect control, complete removal of the fumigant when the treatment is completed, and faster operation. The whole procedure can be completed in 24 to 30 hours.

This method was approved under the khapra beetle quarantine as a means of obtaining complete kill of all insects in bulk commodities. Research is continuing at an increased rate to set up guide posts to help industry adapt the method to wider practical use.

Wheat Sedimentation Test

A wheat sedimentation test for quickly estimating the bread-baking quality of wheat was developed and is now used to some extent in the industry. It can be completed in an average of 7 minutes when several tests are run simultaneously. The results provide a combined estimate of the quantity and quality of protein in wheat and usually give a better index of baking quality than the widely used kjeldahl protein test which determines only the quantity of protein in wheat and requires about an hour.

Movements and Merchandising of Milk

AMS studied the regulations affecting the movement and merchandising of milk. Issued in June 1955 as Marketing Research Report No. 98, the report found that impediments to the free move-

ment of milk do exist, the major ones being sanitary regulations of one type or another. While undesirable sanitary regulations do not exist in many markets, where they were found they had a definite influence on the price consumers were paying for milk.

Costs and Efficiency of Marketing Fruits and Vegetables

A series of studies covering citrus fruits, head lettuce, potatoes, sweet corn, apples, plums, and pears, is being carried on in cooperation with the California, Florida, and Pennsylvania Agricultural Experiment Stations.

The program uses economic and engineering techniques to locate and evaluate the reasons for plant inefficiencies. Economic models are developed for testing the efficiency of specific plant operations and as a means of suggesting improvements and procedures that might eliminate bottlenecks resulting from ineffective use of labor or equipment. This work, going on for 6 years in California, has more recently been expanded into Florida and Pennsylvania.

The results have been widely publicized in trade journals and by extension workers. The findings have been used by the trade as a device for improving their cost position, while the research methods are being adapted widely by Agricultural Economists in experiment stations in many States.

Cotton Warehouse Electronic Scale

An electronic scale, mounted on an industrial lift truck, makes possible the weighing of prearranged bales by one worker. This enables 1 man to do the work of crews ranging from 2 to 9 members, at an estimated potential annual saving of $500,000.

Automatic Box Filler for Apple Packing

The Washington State Apple Commission developed under an Agricultural Marketing Act contract an automatic box filler that virtually eliminates labor costs in "loose filling" wood or fiberboard containers in apple packing plants. Tests show the new machine will: Uniformly fill 3 to 4 boxes of apples a minute or up to 1,600 boxes a day when heavy supplies are available to the packing line; provide more gentle handling of the apples than most manual methods of box filling; and cut the usual cost of filling a box to a small fraction of a cent.

Other Research Accomplishments

Research studies indicated that the storage life of fall and winter pears and Golden Delicious apples can be lengthened and their appearance and dessert quality maintained at a high level by packing the fruit in certain kinds of film box liners, sealed for pears and unsealed for apples.

Substantial savings are being realized by shippers in California and Arizona who dry-pack lettuce in fiberboard cartons in the field or packing sheds and vacuum-cool it for shipment, as compared with ice-packing in the usual WGA wooden crates in packing sheds. This method of packing and transporting was facilitated by a study by the AMS in cooperation with the Western Growers Association.

Studies on maturity of tangelos (tangerines crossed with grapefruit) show considerable variation in total solids, total acid, pH, ascorbic acid, volume of juice, and flavor from year to year, but that the trends of all those factors are the same. These data are expected to be used in the Florida Citrus Code for maturity of tangelos. Development of maturity standards should insure high-quality fruit to the consumer and stimulate expansion of the tangelo industry in Florida.

Largely as a result of experimental work conducted in cooperation with the industry, carrots are now hydrocooled before packaging in polyethylene bags and packing in inexpensive multiwall paper-bag master containers. Transportation costs are less because top ice is eliminated and the lighter paper container lowers billing weight. The largest saving is in the master container itself, which costs about a third as much as the container formerly used. Potential savings of 3 million dollars annually should make possible increased profits to producers and reduced costs to consumers.

The T/C gas analyzer, first adapted to the measurement of fumigant concentrations in 1952, was used to a considerable degree during the past fiscal year, in research related to the fumigation of buildings and commodities. We can now determine the concentration of fumigants at selected positions in a structure or commodity under treatment and conduct the fumigation on the basis of the concentration, rather than upon the basis of the applied dosage rate. For example, buildings quarantined because of the khapra beetle are now fumigated beneath tarpaulins, and are released from quarantine when all selected sample points have a concentration above a predetermined level for a total of 24 hours.

On the basis of plans developed by AMS, new wholesale produce markets in Houston, Indianapolis, Nashville, and Jacksonville were completed and placed in operation. New markets were under construction in Louisville, Raleigh, and Rochester.

Market development research was stimulated by strong demand for factual data. Work was undertaken to determine through retail store experiments whether improved merchandising methods could be found to increase demand for and sales of butter, cheese, winter pears, and red sour cherries.

Three national surveys to obtain a variety of consumer-preference information concerning different commodities were initiated under contract. Also, to fill a widespread administrative and industrial need for basic information concerning national and regional food consumption patterns, AMS collaborated with ARS in a national family food consumption survey as of the spring of 1955.

Considerable effort was spent in measuring changes in farm-to-retail price spreads on foods and fibers, and in studying marketing costs and developing standards of efficiency that will aid farmers and marketing agencies.

AMS studied the spread between the price the farmer gets for his crops and the price the consumer pays for food products. Some of the findings in these studies indicated a continuing increase in marketing services, with part or all of the additional cost added to the marketing margin.

Contributing to this increased cost was the continuing development of ready-prepared foods. Housewives buy many of the services they formerly performed in the home. They and their families eat more meals in restaurants, buy ready-prepared foods. These services save the housewife much labor in the home, but the foods are costlier when bought in these forms.

Work carried out in marketing research field offices was instrumental in solving problems of local growers, processors, and shippers. A scientist in the Fresno, Calif., office developed a "foolproof" method of forecasting the rate of decay in Emperor grapes placed in cold storage. A cooperative organization in that region adopted this method during the 1954 shipping season in selecting sound fruit for later storage and found it successful. In previous years, the association reconditioned 10 carloads of Emperors, during an average season, at considerable expense and loss to growers.

Research by the New York field office solved a problem that threatened a potato-peeling business with severe financial loss. Customers, complaining of off-flavors, were rejecting a high percentage of peeled potatoes. The scientists found that the peeled potatoes retained too high a temperature after being dipped in the standard chemical used to prevent discoloration. Adding ice to the dip-tank solved the problem.

Tests were made on the keeping quality of tomatoes, lettuce, cabbage, and celery. This was part of a continuing study AMS is conducting for the United States Navy and other military agencies to determine conditions for maximum storage life of vegetables eaten raw on Navy ships and oversea military bases. The time required for shipment and storage of these vegetables is sometimes 4 weeks or more.

Tests on temperature, packaging, and maturity showed the best methods to reduce spoilage losses from decay. The results will not only make potential savings available, but the better quality of the vegetables will be an important morale factor to the armed forces.

New field stations for various types of marketing research were established by cooperative arrangements with State experiment stations in the following locations: Homestead, Fla.; Mesa, Ariz.; East Lansing, Mich.; Presque Isle, Maine; College Station, Tex.; and Manhattan, Kans.

Introducing Frozen Grapefruit Sections

AMS marketing research personnel cooperated with citrus processors in determining whether there is a potential market for frozen grapefruit sections. This new product was developed as part of the citrus industry program to sell more grapefruit by developing new markets.

Marketing researchers selected Erie, Pa., as the test area. The citrus industry and Erie retailers advertised the product in all media, demonstrated it in stores. Sales rate of the new product compared favorably with canned grapefruit sections, with about the same number of cases sold for both products. The number of homemakers buying frozen sections in place of canned sections was relatively small.

Reactions of homemakers surveyed and the sales volume of the new product during and after the 4-week promotional period indicated that a potential market for frozen grapefruit sections exists.

Federal-State Matched Funds Projects

One of the many ways in which the United States Department of Agriculture and the States carry on work cooperatively is through matched-fund marketing service projects authorized by the Agricultural Marketing Act of 1946.

During 1955, work was in progress on 96 projects of this type, in 36 States and 3 Territories. Marketing specialists from the Agricultural Marketing Service assisted the States in planning and carrying out these projects.

In most States, these projects are administered by the State Department of Agriculture or its equivalent. The law requires that the financial contribution of the State toward any matched-fund project must be at least as great as that of the Federal Government. Lines of work are: (1) To maintain or improve the quality of agricultural products and increase sales; (2) to assist marketing agencies in reducing operating costs; (3) to collect and disseminate special, local market information; (4) to conduct experimental market news projects.

For example, marketing services for improving and maintaining dairy-product quality were provided in Wisconsin, North Dakota, North Carolina, Indiana, Mississippi, Kansas, and Minnesota. In Indiana, the service activities with milk plants are carried on by Purdue University and, last year, were directed primarily to the development of uniform grading procedures in accordance with the standards established by State regulations for milk and cream. In previous years, the United States Department of Agriculture and Purdue were instrumental in the development of these standards.

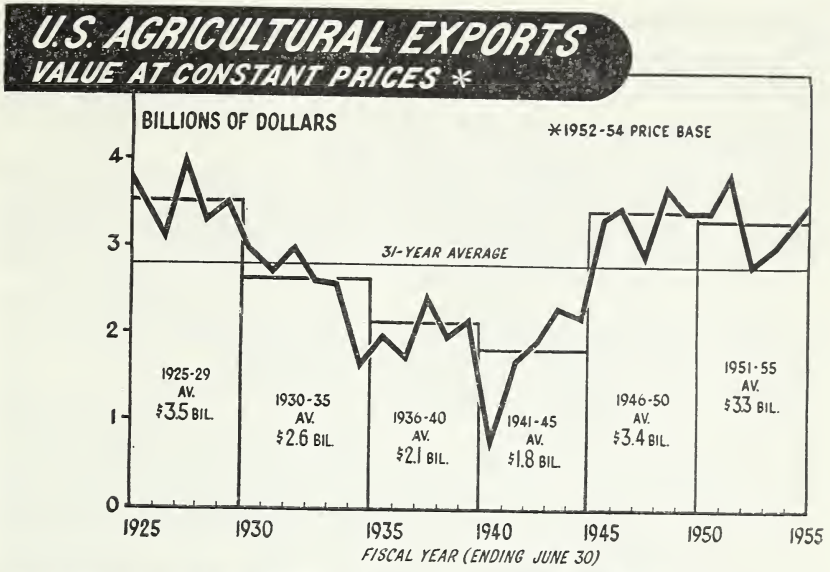
During the period covered in this report, 219 milk-grading and 272 cream-grading procedures were checked and 296 plant-grading records were reviewed. Findings were discussed with plant managers and employees, individually and at area meetings. Thirty-four meetings were held on milk grading and 22 on cream grading. The quantity of milk rejected for purchase by cooperating dairy plants has decreased from 5,394,000 pounds in 1948, the last year prior to the initiation of this work, to 3,191,000 pounds in 1953–54.

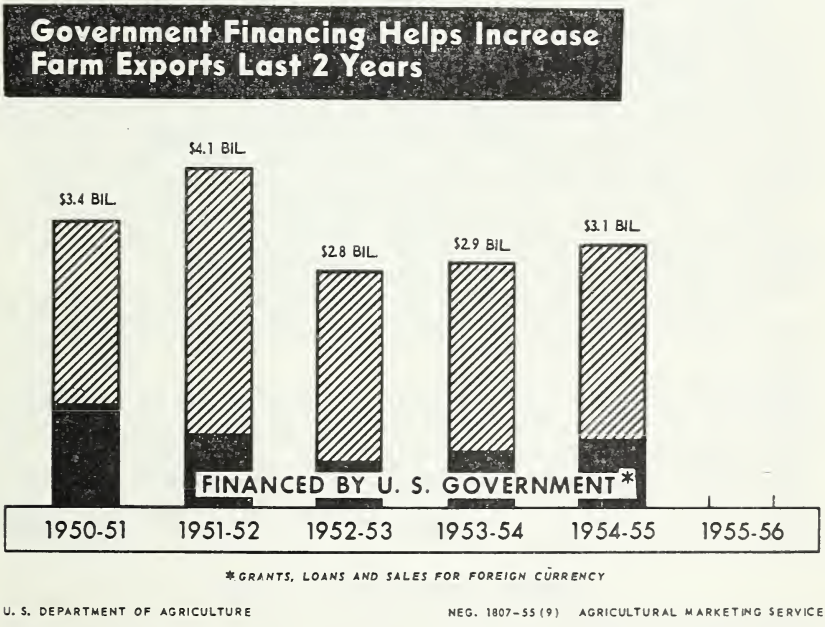
Commodity Exchange Authority

A grower and shipper of Maine potatoes, asked by the Commodity Exchange Authority for his opinion of the New York market for potato "futures," said it was "the worst thing that ever happened." Another Maine grower-shipper said futures trading was so essential that he could not operate successfully without it.

Maine opinion on the fast-growing New York futures market, the Commodity Exchange Authority found, was just that sharply divided. The CEA is the agency of the Department which regulates trading in futures markets for 22 agricultural commodities to maintain fair practices and to prevent price manipulation and other trading abuses.

Properly conducted, the trading in large futures markets, such as the Chicago Board of Trade and the New York Cotton Exchange, is credited with performing essential agricultural marketing services.





Exports of farm products in 1954–55 rose 7 percent in value and 12 percent in volume over the preceding fiscal year, and the higher level is likely to be maintained in 1955–56. A relatively large share of total exports will move under government export programs. Foreign countries in general are in an improved financial position and economic activity and world trade are at high levels. However, an important factor which may limit foreign demand for United States exports is expanding production and large stocks in foreign countries.

Futures trading provides highly competitive prices, open for all to see.

In the New York potato futures market, however, greatly increased speculative activity and erratic price fluctuations in the 1954–55 season brought many complaints that futures trading was doing more harm than good in potato pricing and marketing.

Some of these complaints were justified. Twice in the early part of 1955, as a result of CEA investigations, large speculators in potato futures were charged with actual or attempted price manipulation. The Department suspended the trading privileges of 13 individuals and corporations for violation of the Commodity Exchange Act.

Despite the abuses that were uncovered, many growers and shippers said they had used futures effectively for pricing and hedging, and wanted to see the market continued and improved.

Suppression of price manipulation in specific instances is a very important and necessary regulatory job, but it is not the whole story of futures-market regulation. Obviously, market regulation cannot tell farmers or others what their opinions and decisions about futures trading should be. There are questions of fact, however, that may be answered. What was the exact size of the potato futures market? How many growers, dealers, shippers, and others were actually using the market? Where were they located? What part of the trading was speculative and what part hedging? How did the make-up of the futures market for potatoes compare with that for other commodities, such as wheat, corn, and cotton?

To get these facts, the CEA obtained information concerning the account of every potato futures trader in Maine, New York, and other States—the name and address of each account, the amount of futures contracts "long" or "short," and whether they were speculative or hedging. The results were issued in a comprehensive public report.

From such reports, farmers, their legislative representatives, and others concerned, may form their own opinions and decisions on futures trading, as on every other marketing institution.

While the regulatory work of the CEA in New York, Chicago, and other futures-market centers takes place at a distance from local farm communities, it has significance for nearly all farmers because of the widespread use of futures prices.

Futures prices are used generally as "base" prices in arriving at "cash" or "spot" price quotations for farm products, not only at terminal markets but also at local markets and country points.

If futures prices and related income returns to farmers are truly to reflect basic supply and demand conditions, the trading in futures markets must be fairly conducted, and free from price manipulation.

Foreign Agricultural Service

The Foreign Agricultural Service continued in 1954–55 to represent American agriculture in obtaining a larger foreign market for United States farm products.

It was the second year of operation for FAS, since its reestablishment to replace the Department's former Office of Foreign Agricultural Relations. It was also the second successive year of improving agricultural exports. United States agricultural exports for 1954–55

totaled $3,143 million, a gain of 7 percent over the previous year and 11 percent above 1952–53. On a quantitative basis, our farm exports for 1954–55 were 12 percent above the previous year and 18 percent above 1952–53.

The downward trend in United States farm exports has been reversed.

United States farmers are the world's largest exporters of farm products. The proportions of their production that went to foreign markets in 1954–55 were: wheat, 28 percent; cotton, 26 percent; tobacco and rice, 23 percent; sorghums and soybeans, 17 percent; lard, 20 percent.

American farmers would find their marketing position intolerable were it not for their overseas outlets. American agriculture needs to share its excess production with customers overseas—and its success in so doing determines to a considerable extent agriculture's overall prosperity.

The Department's export goal, as reflected in the work of FAS and companion agencies, is to maintain, regain, and expand foreign markets for American farm products.

To help our agriculture move toward this goal in 1954–55, we determined that:

1. *American agriculture's overseas representation would be strengthened.*

Accordingly, FAS expanded its agricultural attaché activity to 83 attachés and assistant attachés, stationed at 57 posts abroad. Proportional expansion was made in the number of marketing specialists covering foreign areas on special assignment.

2. *These government people would be trade reporters and trade expediters, and would work closely with the American agricultural industry—but would not be salesmen.*

We pointed out clearly and repeatedly that the Department has no wish to take over the commercial prerogatives of private business, and that we have faith in the continuing ability of private trade to do the buying and selling of United States farm products.

3. *The big foreign marketing problem was one of "access" to overseas markets.*

Where United States farm products were excluded for invalid reasons, FAS worked with foreign governments to get such barriers lowered. Where valid reasons existed, such as actual financial inability to purchase from dollar areas, FAS encouraged foreign governments to avail themselves of the various special export programs designed to help overcome dollar problems.

4. *American agriculture would strive to become more competitive in the world market.*

Foreign growers of such principal commodities as wheat and cotton have been increasing their production while American farmers were reducing theirs. Only by achieving a position of greater competitiveness can American agriculture hold its own.

5. *An agricultural export policy, in keeping with the United States position of world leadership, should be developed.* This policy can be summed up as follows:

We will compete fairly on the world market.

We will be competitive in quality.

We will participate in a mutually profitable international trade that gives our customers abroad the continuous opportunity to earn the foreign exchange they need to buy our products.

During the year approximately 70 percent of United States farm exports moved through regular commercial channels, paid for with "free" dollars, while about 30 percent were aided by the various Government programs. FAS recognized the need for, and assisted in administering, Government export programs—but retained the long-range goal of a world market in which American farm products could compete successfully without such special program aid.

High in importance among FAS' efforts to help American farmers obtain and maintain foreign markets on a fair and competitive basis was its work to lower or eliminate foreign barriers. These barriers are of different types and they have arisen from different causes. Some exist because some countries seek, under pressure of protectionist influence of producers or supposed national security needs, to grow crops which we can produce more efficiently and which it would be to their genuine economic interest to import. Competing exporters have resorted to special pricing bilateral trading arrangements to the disadvantage of United States farm exports. Consultations seeking a relaxation of these arrangements were held with foreign government officials both within the framework of the International Monetary Fund and the General Agreement on Tariffs and Trade (GATT), and bilaterally through our agricultural attachés.

The Republic of Germany, departing for the first time from its policy of restricting imports of food products paid for with dollars, issued a liberalization list which included such food items as vegetable oils for technical purposes, oilseeds, and canned grapefruit.

Sweden lowered its bars against imports of cotton, wool, rice, dried fruits including raisins and prunes, fruit juices, canned fruits and berries, canned vegetables, and other products.

Denmark liberalized its import policy to admit cotton, wool, tobacco, hops, peanuts, grass seed, and various oils. Belgium, Luxembourg, and the Netherlands did the same for many agricultural commodities, including cotton, tobacco, peanuts, soybeans, vegetable oils, tallow, coarse grains, and powdered and condensed milk.

From the end of World War II until the past year the United Kingdom severely restricted imports of all fruit from dollar areas. Discussions were held through 1954–55 to liberalize trade policy for fruit by Britain, which was our best customer for that commodity prior to the war. A total of $16.1 million was authorized for United States fruit for the year, and discussions were started regarding 1955–56 imports.

Progress toward liberalization by non-European countries also was made, especially in Pakistan where a United States export program helped ease the exchange situation.

FAS participated actively in administering the various export programs, the primary purpose of which were to find greater outlets for the Nation's accumulating agricultural surpluses. The major tool in this regard was the Agricultural Trade Development and Assistance Act of 1954 (Public Law 480, 83d Cong.). Under its three titles, $1,200 million of such products were sold, distributed, or committed to other countries. Since the program did not become effective until

September 9, 1954, these disposals actually were arranged during slightly less than 10 months of the fiscal year. Disposals during 1955–56 are expected to be larger, both on a yearly and monthly basis.

FAS was responsible for the administration of title I of Public Law 480, which permits sale of United States farm products for foreign currencies. Sales commitments were made for commodities valued at $468.8 million (CCC cost). The currencies thus obtained have been, or will be, used to develop additional markets abroad for American agricultural commodities, and in other ways advantageous to the United States.

FAS continued during the year to be the Nation's primary source of information on foreign agricultural developments—including production, markets, competition, and policy. Up-to-the-minute word on foreign developments was sent regularly to FAS, via cable and air despatch, from agricultural attachés, roving marketing specialists, and other sources. Information thus gained was relayed to the American public by press and radio and through a series of publications. Farm and trade groups, Congressional leaders, and Government agencies relied on such "intelligence" as their principal source of information on foreign agricultural developments.

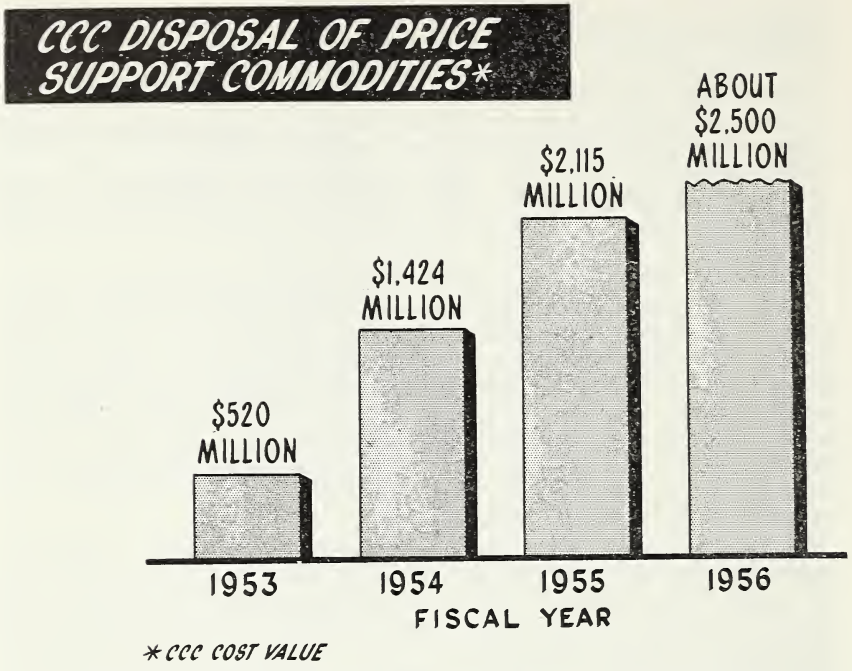
During the year, FAS was instrumental in initiating American agriculture's first participation in international trade fairs, in many countries a traditional annual event for advertising sales products. As a pilot operation, participation was arranged for the International Food Fair, Cologne, Germany, October 1–9, 1955, with 16 exhibitors of United States food products taking part, and planning was begun for a second exhibit project in connection with the Second International Industries Fair at Bogota, Colombia. United States agriculture will advertise its products at similar expositions in other countries in 1956.

During 1955, FAS observed its 25th anniversary. The Congress, on June 5, 1930, had established the Department's first Foreign Agricultural Service as a part of what was then the Bureau of Agricultural Economics. Its purpose, as now, was to send agricultural attachés and commodity marketing specialists abroad to report back on foreign marketing opportunities and competition, and in other ways to help promote United States agricultural trade. In 1939, the attachés were transferred to the Department of State and the organization gave way to an Office of Foreign Agricultural Relations. OFAR operated largely in a wartime and rehabilitation atmosphere, with comparatively little stress placed on trade promotion. By 1953, however, United States farm surpluses were accumulating once more to such an extent that emphasis on foreign market promotion again was needed. The present FAS was reestablished that year and greatly strengthened.

AGRICULTURAL STABILIZATION

Commodity Stabilization Service

"The price support program has helped me do a better job of marketing." That's the opinion of one North Dakota farmer who has used the program regularly since 1941.



He explains it this way: "Producers in this part of the State harvest their small grains at about the same time, ordinarily. As a result, elevators fill up rapidly, and oftener than not there's no place for me to go with my grain. But that's no problem when loan programs are available. I simply store the grain in my own bins and take out price support loans through my local Agricultural Stabilization and Conservation Committee. The loans not only provide the cash I need in order to pay operating expenses but they also give me 8 or 10 months in which to take advantage of any price rise."

This North Dakota farmer also believes that the loan program has made for more orderly grain marketing all around. By withholding grain from the market at harvest time, he explains, the burden is lightened for elevators and railroads. The grain can be fed into the market gradually after the fall harvest glut is over.

"But a producer must have storage space on his own farm in order to make the best use of the price support program," he warns. "Commodity Credit Corporation storage loans are available to help bring capacity up to the proper level." He obtained a loan for a 14,000 bushel grain storage building in 1950—the year the Korean War started. The local elevator was "blocked" for several months because of a boxcar shortage, and he couldn't have marketed his grain except by hauling it 50 miles by motor truck. The new storage building turned out to be a profitable venture.

Last year he put 1,700 bushels of grain under loan.

Thousands of farmers used CCC price support programs in 1955 as heavy supplies continued to exert strong downward pressure on prices. Support extended to farmers on 1954 crops, through June 30, 1955, amounted to $2,943,000,000—although this total was considerably less than the $4,306,000,000 extended on 1953 crops as of June 1954.

The amount of money "tied up" in price support loans and commodity inventory at the end of June 1955 amounted to $7,069,000,000, consisting of $2,098,000,000 in loans outstanding, and $4,971,000,000 in commodity inventories.[1]

A total of $1,094,000,000 in loans was outstanding as of June 30 on the 6,403,000 bales of upland cotton pledged as collateral. Other commodities under loan included corn, tobacco, wheat, extra long staple cotton, honey, soybeans, barley, dry edible beans, flaxseed, grain sorghum, oats, rice, rye, and tung oil. Of the commodity stocks owned outright by CCC the largest was wheat—976,000,000 bushels, acquired at a cost of $2,547,000,000. Corn stocks—581,000,000 bushels—cost $986,000,000. Other commodities in inventory included cotton, dairy products, barley, dry edible beans, cottonseed meal, flaxseed, sorghum grain, oats, rice, rye, seeds, soybeans, rosin, turpentine, cottonseed oil, linseed oil, tung oil, tobacco, and wool.

The net realized loss on the price support program for fiscal 1955 totaled $799,061,464. This compares with the previous peak of $419,477,074 in fiscal 1954.

Although CCC acquired large quantities of commodities under the price support program, substantial volumes were also disposed of. Commodities costing $2,115,000,000 were moved into domestic and foreign consumption in fiscal 1955. Of this total, $1,697,000,000 worth represented sales and $418,000,000 worth donations.

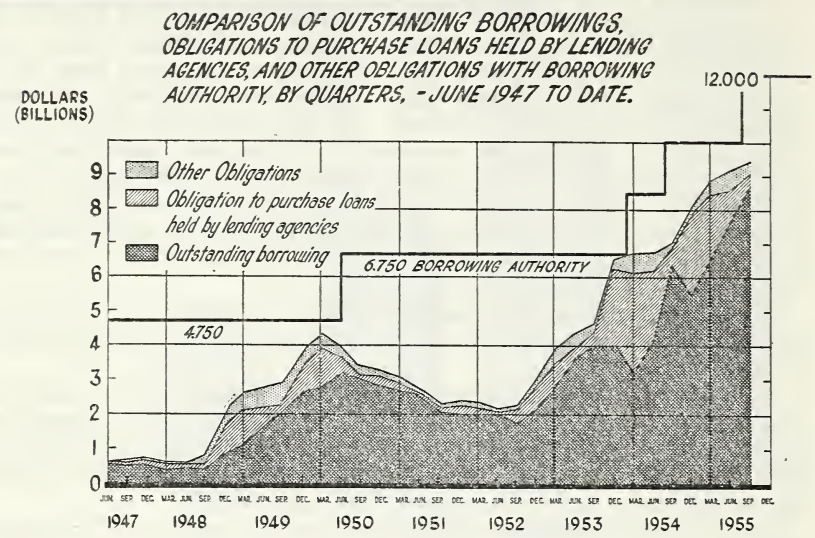
On the $1,697,000,000 worth of commodities sold, CCC recovered $1,340,000,000. We sold $111,000,000 worth for foreign currencies, as authorized under Title I, Public Law 480, 83d Congress. We delivered $122,000,000 worth of commodities, largely wheat, under barter contracts in exchange for strategic and critical materials. CCC sold wheat and flour to meet needs of friendly nations outside of International Wheat Agreement quotas and at prices comparable to those provided in the agreement. Over 67,000,000 bushels of wheat, including wheat equivalent of flour, with a market value of $159,000,000 were thus supplied during fiscal 1955.

The $418,000,000 worth of commodities donated, mostly dairy products, moved under authority of section 416, Agricultural Act of 1949, as amended. This authorizes CCC to donate food commodities for school lunch and relief use in the United States and, through nonprofit voluntary agencies, for relief use abroad.

Heavy support activity brought a continuation of CCC's storage facilities program. The capacity of CCC-owned bin storage was increased from 838,000,000 bushels to 884,000,000. CCC also made arrangements to use for storage purposes additional idle ships of the Maritime Commission's reserve fleet, bringing to 384 the number of vessels thus employed with a storage capacity of 93,000,000 bushels. About 192,000,000 bushels of grain storage capacity has been provided under a program of payments to commercial grain warehousemen in the event occupancy of newly constructed commercial-type storage facilities falls below specified levels. CCC loans to farmers assured construction of 68,000,000 bushels of farm storage facilities, bringing to 263,000,000 bushels the total constructed from the inception of the program in 1949 to June 30, 1955.

[1] On December 31, 1955, CCC's total investment was $8,666,309,000.

CCC FUNDS OBLIGATED



Actual sales recorded through August 2, 1955, against the International Wheat Agreement quota of 195,572,000 bushels totaled 139,486,000 bushels. During fiscal 1955, export payments of almost $97,000,000 were made on about 129,000,000 bushels of wheat and wheat equivalent of flour. In addition, CCC provided well over 2,000,000 bushels of wheat and wheat equivalent from its own stocks on which the differentials totaled almost $2,000,000. The aggregate differential payments amounted to $98,482,076 on the total of 131,491,407 bushels—an average of 74.8 cents per bushel.

CCC is authorized to borrow money as needed for its operations. The statutory authority was increased from $10,000,000,000 to $12,000,000,000 by virtue of legislation approved August 11, 1955.

Heavy supplies again made "adjustment" operations necessary for the basic crops.

Tobacco marketing quotas were in effect for the 1954 crop and were approved for the 1955 crop of all kinds of tobacco with the exception of Maryland (type 32) and Pennsylvania cigar filler (type 41). The kinds under quota represented about 96 percent of total United States production.

It was feared early in 1955 that potentially heavy supplies of Burley tobacco might decrease the 1956 allotment as much as 60 percent. To prevent such drastic action, Congress passed special legislation (Public Law 21, 84th Cong.) which directed the Secretary of Agriculture to redetermine the 1955–56 national Burley quota and to reduce acreage by not more than 25 percent. In the special referendum held on March 28, 1955, 96 percent of the more than 333,000 growers of Burley tobacco who voted approved the redetermined quota.

A national marketing quota of 10 million bales and a national acreage allotment of 18,113,208 acres for the 1955 crop of upland cotton were proclaimed and were approved by cotton farmers voting in a national referendum. Quotas and allotments were also proclaimed and approved for the 1955 crop of extra long staple cotton.

Wheat marketing quotas were proclaimed in June 1954 and, in accordance with existing legislation, the national acreage allotment for 1955 was set at the maximum level of 55,000,000 acres under current conditions of heavy supply. Quotas were approved by 73.3 percent of the farmers voting in referendum.

Legislation enacted during the year provided for the establishment of a noncommercial wheat-producing area, permitting the exclusion of minor wheat-producing States from marketing quota and acreage allotment programs. Excluded from 1955 operations were Alabama, Arizona, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, Nevada, New Hampshire, Rhode Island, and Vermont.

In January 1955, an allotment of 49,842,679 acres was proclaimed for the 1955 crop of corn in the commercial area, as compared with 46,995,504 acres in the area a year earlier.

In December 1954, marketing quotas and acreage allotments were proclaimed for the 1955 crop of rice, and quotas were approved by producers on January 28, 1955. Allotments established under the program totaled 1,859,099 acres.

A national peanut acreage allotment of 1,610,000 acres and a marketing quota of 740,600 tons for 1955 were established. In May 1955 individual farm allotments were increased 7.5 percent as the result of low carryover stocks and revised estimates of 1955 production.

Sugar requirements for the calendar year 1954, which initially had been established at 8,000,000 short tons, raw value, and raised in March 1954 to 8,200,000 tons, were increased again on December 3, 1954, to 8,250,000 tons to provide supplies to meet United States consumption and year-end inventory requirements. On December 21, 1954, sugar requirements for 1955 were determined to be 8,200,000 tons—300,000 tons below the anticipated level of consumption. The allowance of 300,000 tons was made (1) to compensate for sugar delivered within 1954 quotas for consumption in 1955; (2) to stabilize prices at levels that would maintain the domestic industry; and (3) to allow for a margin of error in the projection of anticipated consumption. As of June 30, 1955, the 1955 sugar requirements level of 8,200,000 tons was unchanged.

Under title III of the Sugar Act, conditional payments totaling slightly more than $68,400,000 were made to approximately 71,100 sugar beet and sugarcane producers in 23 States, Hawaii, Puerto Rico, and the Virgin Islands with respect to the crop year 1954. Producers qualified for the payments by meeting certain conditions pertaining to child labor, wage rates, proportionate shares, and in the case of processor-producers, payment of fair and reasonable prices.

Agricultural Stabilization and Conservation Committees, as in other years, administered price support and adjustment operations at the State and county levels and made payments to producers under the sugar program.

Federal Crop Insurance Corporation

Five hundred acres of Iowa corn represent a major investment of money and labor. From these fertile acres an outstanding Iowa farmer would have salvaged only fodder and silage, except for his foresight in paying crop insurance premiums for all-risk protection on his corn investments. He received a crop insurance indemnity check of nearly $10,000. His check would have been larger, except that for 1955, after several years of insurance protection and bumper corn crops, he had changed from the higher level of protection to the lower level in order to reduce his crop insurance premium. There was little or no corn in many promising fields in 1955 due to a prolonged heat wave at a critical period in the growing season.

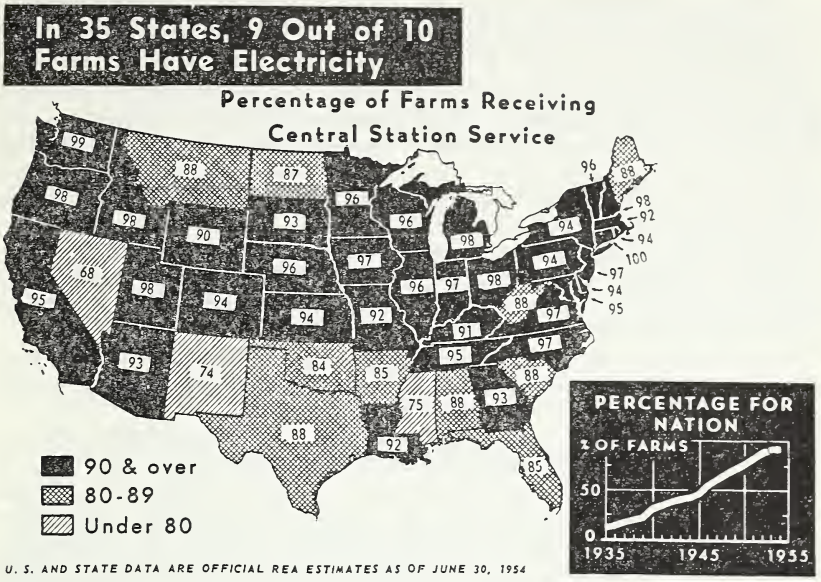
Crop insurance should be the same kind of operation as any other insurance. It should be a farm program offering protection with an adequate premium charge to cover the protection provided. Crop insurance operated too long without sufficient attention being given to developing a sound, businesslike structure. While the strengthening of the rate structure that has been systematically pursued during recent years has not tended to stimulate business, it represents a major improvement in the soundness of the crop insurance operation that must be maintained and continued.

Again in 1955, due chiefly to the prolonged drought in the Southwest that has been moving northward, the total experience of the Corporation shows a deficit of premiums sufficient to cover all indemnities. The premium income approximated $22,250,000 and the total indemnities were about $26,200,000. These figures, however, do not reveal the improvement that has been made in strengthening the crop insurance operation in most counties and areas. While the operation has been generally improved since 1948, the accelerated progress of the past 3 years has been obscured by the very unfavorable insurance record compiled by a few counties during this period. Fourteen of the 794 counties in the program in 1955 had such severe losses from 1948 through 1955 that if these 14 counties had not been in the program during that period, the Corporation would have shown a premium reserve of $6.5 million after the 1955 crop year instead of a deficit. These counties are being dropped from the program. Their experience has been far out of line with the risk that can be soundly carried.

A major improvement is being made in the attention and discretion exercised in the type of risks insured. Farmers are no longer allowed to wait until risk conditions rise above normal before signing up for insurance. They are being advised that, to become policyholders, they must apply under normal conditions and they are being encouraged to carry all-risk protection every year so that when they need it—like the Iowa farmer mentioned earlier—they will have it in force.

Expansion of the program into additional counties in good producing areas and insurance of additional crops in many of the counties where only one is now insured are under way. The history of the Corporation indicates very clearly that spreading the risk more widely among crops and areas will improve the annual experience of the Corporation while making available the services of this insurance to additional farmers, crops, and counties.

Many problems are involved in the development of a sound, businesslike crop insurance operation. All-risk crop insurance probably deals



with more variables and uncertainties than any other type of insurance. It insures against all the quirks of Mother Nature—not only the tricks she has played in the past but the new ones she introduces each year in some area of the country.

Crop insurance is an important method of reducing risks in agriculture. We have a long road ahead to make it a self-supporting operation, but we are hopeful that this objective will eventually be reached.

AGRICULTURAL CREDIT

Rural Electrification Administration

Electric Program

Mr. and Mrs. R. D. and their three teen-age daughters live on a 400-acre rented farm near Rector, Ark. They get their electric service from the Clay County Electric Cooperative of Corning, Ark., which has used REA loans of more than $3,000,000 to develop a rural power distribution system in the northeast corner of the State.

The D's have had electric service for 8 years, but they are adding new appliances each year and putting them to work on their diversified farm. They use on the average about 740 kilowatt-hours a month and have been recognized by their cooperative for their extensively electrified farming operations.

Mr. D. says he saves $75 a year alone by sharpening sickle and mower blades with a grindstone in his own electrified farm shop. Infrared brooding saves from one to three pigs a litter. Electric brooding is also used with chicks and lambs, and there is electric fencing to rotate pastures, barn, and barnyard lighting and an electrically powered pressure water system. In

the home, the family has an electric washer, water heater, range, refrigerator, two 9-foot freezers, radio, iron, clock, mixer, sewing machine, coffee maker, and—most recently added—television set.

Nearly 4,200,000 consumers in fiscal 1955 were receiving their electric service over lines financed by REA loans and put this power to work to save time, labor, and money on farms and in nonfarm rural homes and business establishments. During the year, these consumers used more power than ever before and got it at the lowest average cost in program history.

To provide the kind of expanded service consumers were demanding, the REA rural electric borrowers came to the agency for additional financing which during the year ran slightly higher than the level of the preceding 3 years.

That REA met these loan needs efficiently is indicated by the fact that the loan application backlog was reduced to $97 million, lowest since World War II.

During the year, 349 loans were made for a total of $167.5 million. Loans for system improvements to meet the growing rural use of power came to 21.5 percent of the total. Loans for new connections and related facilities amounted to 51.5 percent. Loans for generation and transmission increased to 24.5 percent and those for consumer financing moved up to 2.5 percent, the second highest total in program history.

Reports compiled during the year show that residential consumers on REA-financed lines used an average of 2,700 kilowatt-hours of power during calendar 1954, almost double the amount used in 1948. Residential retail power costs averaged 3.1 cents per kilowatt-hour, the lowest in program history. Borrower costs for wholesale power dropped to about 7.4 mills, another new low.

Borrower financial stability rose to a new high. By the end of the year, REA's 1,000-odd borrowers had borrowed a cumulative total of more than $3 billion. They had repaid $328 million of principal as it fell due and in addition had almost $85 million in advance payments as a cushion of credit. Interest paid exceeded $209 million. Payments overdue more than 30 days were only $398,000. During the year, two rural electric cooperatives paid out of earnings their entire indebtedness, long in advance of maturity.

In the field of power supply, rural electric borrowers called upon REA to finance 10 new generating units and 1,700 miles of transmission line in situations where power was not already available from existing sources or where savings could be made by installation of the new facilities. Loans amounting to $41 million were made for these purposes.

Like many of REA's loans in the generation and transmission field down through the years, the new loans for power production involve various plans for integration, interconnection, and power pooling with other power suppliers. The effect of such arrangements is either to save money through reduced initial investment and lower operating costs or to improve the reliability of service or both.

REA made 77 loans amounting to a little over $4 million to provide consumer financing. Borrowers lend this money to farmers for the installation of electrical wiring and appliances. These loans reflected increased activity in the power use field.

Power use promotion on a national scale developed to a higher degree during the year through the activities of the Inter-Industry Farm Electric Utilization Council on which REA has membership. The Council's program brings together REA borrowers, electric companies, manufacturers, distributors, dealers, and others concerned with the effective use of electricity on the farm.

Telephone Program

Some 5 miles out of McCordsville, Ind., Mr. and Mrs. M. S. operate their farm. They sell around 4,000 bushels a year of certified hybrid seed corn and also raise popcorn for the Indianapolis market. To stay in business Mr. S. needs modern telephone service. He got it this past year through the Hancock Rural Telephone Corp., which used an REA loan to modernize and expand its service.

Now he is able to have a private line and dial service, with an extension telephone in the seedhouse. His long distance bill may run to $125 a month. In addition to the time saved, he values modern telephone service because "you can stay right here on the farm and talk with anyone in the world who has a telephone."

In fiscal 1955, REA made 147 telephone loans, for a total of nearly $53 million, which will enable borrowers to bring new or improved telephone service to about 113,000 rural subscribers. At the year's end REA had 351 telephone borrowers—about equally divided between independent companies and cooperatives or mutuals. Loans since the beginning of the program in October 1949 totaled $234 million to benefit more than 500,000 rural subscribers.

The rate of construction was greatly stepped up during the year. Funds actually advanced to borrowers to meet construction and other initial costs in establishing the new service reached a new high of almost $40 million, exceeding by 40 percent the highest previous year. Construction studies showed substantial progress in bringing down the cost of rural telephone facilities. REA attributes the reductions to more competition among contractors and suppliers, standardization of equipment, and a better understanding by contractors of REA procedure and requirements. Further attention is being given to costs, and tests of improved rural communication techniques continue.

At the year's end, 29 telephone borrowers had overdue payments of $512,000. In some instances, delays in the delivery of equipment have held back revenues, while some borrowers have had sign-up problems stemming from local conditions such as drought. Attention will be given to helping all borrowers attain a solid loan repayment position.

Farmers Home Administration

Many farmers need to borrow money to make adjustments in their systems of farming and thus increase their incomes and improve the productivity of their land. A. C. who owns and operates a family-type farm near Brewton, Ala., not long ago found himself faced with this problem.

A cotton farmer all his life, Mr. C. decided last year that he would have to develop a system of farming that provided other sources of income and made full use of his resources. Cotton had been the only cash crop on the 190 acres he farmed, 140 of which he owned. He came to the local Farmers Home

Administration office with the problem of how to finance the necessary readjustment.

He had a tractor and necessary equipment, 2 cows and a calf, and 20 hens. The farm was capable of supporting fair-sized hog and beef enterprises, along with the 30 acres allotted for cotton. But most of the farm would have to be reterraced, waterways established, and permanent pasture developed, and corn grown so the hogs could turn it into cash. A satisfactory water supply was needed.

The FHA supervisor helped Mr. C. work out a long-time farm and home plan and set up a farm and home plan for the first year's operations. A loan was approved for livestock, fencing, pasture improvement, family living, and annual operating expenses. Repayments were scheduled over a 4-year period so the loan could be paid off as the farm earned new income. The first year's payment could be made from cotton. Additional income would be available from other sources in future years.

C. bought 5 bred gilts and 7 brood cows the first year, planted 30 acres of cotton, 70 acres of corn, 10 acres of oats, 3 acres of strawberries, 2 acres of garden, and established 12 acres of permanent pasture. His plan called for following the cotton with 25 acres of cover crop and for increasing the numbers of his livestock as the feed program developed. SCS helped him establish waterways, terraces, and other permanent soil improvements and he received ACP payments to help defray the cost.

As a result of improved management practices C. estimates that his crop yields per acre will be increased one-third. He is contracting for light and power from Southern Pine Electric Cooperative, and he has put down a deep well to furnish water for his farm and home.

The income the C. family received from the cotton crop in 1954 and from cotton and hogs in 1955 has enabled them to repay about $5,300 of the funds they borrowed. Income from the cattle will increase in future years as pastures are developed and the foundation herd enlarged. The C.'s have a better farm and a better living than they had 2 years ago. They are repaying their loan on schedule and expect within 3 years to have a combination of cotton-hog-and-cattle enterprises that will double their income of 2 years ago.

Approximately 135,000 farm families obtained production and subsistence credit or some other type of credit through the Farmers Home Administration during fiscal 1955. Including farmers who already had loans, some 248,000 families worked their farms with credit received from the agency.

Loans made and insured by the Farmers Home Administration in fiscal 1955 totaled $293,190,000, the highest level in the agency's history.

In 1954 approximately $292,462,000 was advanced or insured. The 1954 volume of loans represented an increase of 28 percent over the $228,600,000 loaned in 1953.

The insured farm loan program was greatly expanded during the 1955 fiscal year and a soil and water conservation loan program was introduced.

Private lenders provide the funds for insured loans. The Farmers Home Administration makes and services the loans and guarantees the repayment. The volume of insured loans rose from $9,500,000 in 1954 to $47,402,000 in 1955, due to increased participation by lenders and the use of insured loans in financing soil and water conservation. Previously, only farm ownership loans were made on an insured basis.

The soil and water conservation loan program, which began about October 1, 1954, provides for soil conservation; water development, conservation and use; and drainage.

Loans may be made for such improvements as construction and repair of terraces, ponds, waterways and erosion control structures, ditches and canals for irrigation and drainage; and also for sodding, subsoiling, pasture improvement, brush removal, land leveling, tree planting, well drilling, and the purchase of pumps, sprinkler systems, and other irrigation equipment.

Production and subsistence loans in fiscal 1955 to operators of family-type farms for the purchase of farm equipment, livestock, fertilizer, seed and other farm and home operating expenses totaled $133,592,000. With the aid of these funds, owners and operators of family-type farms developed balanced farming systems and made full use of their resources. Approximately 75 percent was invested in farm equipment, productive livestock, and other capital improvements.

Farm ownership loans to purchase and develop family-type farms, including the construction and repair of farm houses and other essential farm buildings, totaled $50,932,000, of which $31,933,000 was provided through the insured loan program. Both the total amount loaned and the amount insured set all-time records.

Soil and water conservation loans totaled $19,491,000 of which $15,469,000 was insured.

Approximately $89,175,000 was advanced to permit farmers to continue normal operations under emergency conditions, including $19,404,000 for special livestock loans.

Loans made by the Farmers Home Administration are available only to farmers who cannot obtain the credit they need from other sources. Borrowers are required to refinance their loans as soon as they are able to do so.

With production and subsistence, farm ownership, and some types of soil and water conservation loans, the borrowers received the assistance of the agency's county supervisors in preparing farm and home operating plans, in keeping farm records, and in obtaining advice on farm problems.

Applications for loans are made at the 1,500 county offices of the agency serving agricultural areas throughout the United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands.

The eligibility of applicants is determined by local county committees composed of three members, at least two of whom are farmers.

During fiscal 1955 collections on principal and interest, including collections on insured loans, amounted to $257,927,000 compared to $194,593,000 in 1954. Loans outstanding as of June 30, 1955, totaled $896,739,000 compared to $850,363,000 as of June 30, 1954.

THE 1955 RECORD AND THE OUTLOOK

Production, Yields, and Acreage

To help farmers and businessmen plan their operations, the Department collects and interprets economic information on current and foreseeable trends affecting American agriculture. This work is done by specialists in the Agricultural Economics Division of Agricultural

Marketing Services. One group of experts in this agency specializes in farm prices, demand, and consumption of farm products both current and past insofar as they bear upon future trends. Another group estimates farm income and expenses and the forces that affect the level of demand for farm products. A third analyzes trends in farm population, farm employment, and levels of living of farm people.

We publish our findings both in the form of research and statistical reports and in Outlook and Situation analyses which we issue periodically. The Outlook and Situation reports are cleared through a board made up of experts drawn from the entire Department. In the 30-odd years that the Department has provided these services, farmers and the food trade have come to regard them as indispensable to the conduct of their operations. Congress and Government administrators rely upon our economic reports for objective analyses of agricultural situations.

Total wheat supplies for the marketing year, which began July 1, were estimated at about 1,963 million bushels. This consisted of the carryover July 1, 1955, of 1,020 million bushels, the 1955 crop estimated at 938 million bushels, and imports of around 4 million bushels, mostly feeding quality wheat from Canada. This total supply was nearly 5 percent above the previous high point of 1,876 million bushels a year earlier.

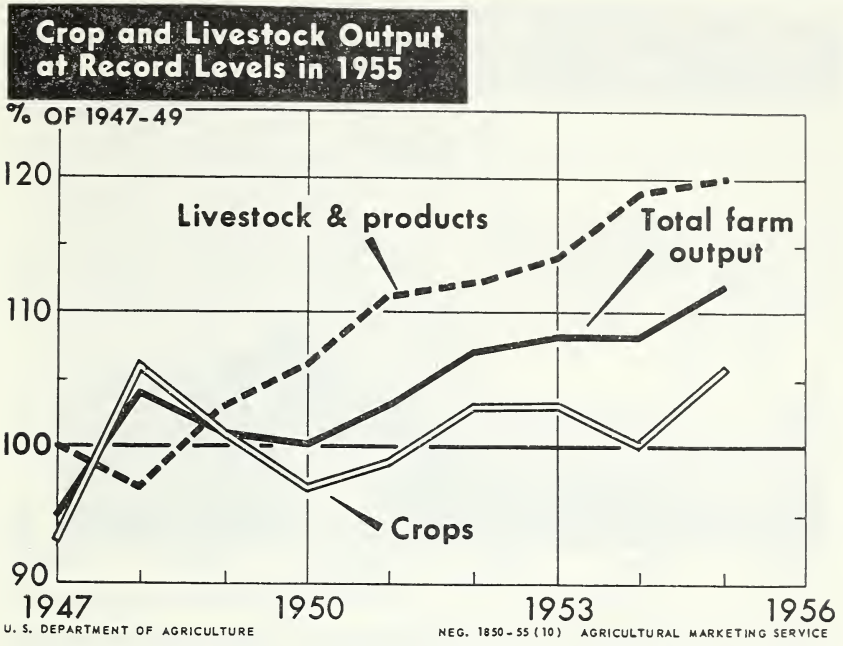
Marketing quotas for the 1956 crop were approved by wheat farmers in a national referendum on June 25, 1955. The national allotment is 55 million acres. With such an allotment, and assuming yield per seeded acre at 15.5 bushels, approximately equal to the 1944–53 average, a crop of about 860 million bushels might be produced in 1956. However, through the operation of a Soil Bank (which I shall describe a little later) harvested wheat acres could be reduced by 12 million to 15 million below the allotment in future years. Such a reduction could lower the production by some 200 million bushels per year until supplies reached manageable proportion.

Corn and Other Feeds

A record supply of feed grains and other concentrates is available for the 1955–56 feeding season. The corn supply of about 4.2 billion bushels is a little above the previous record of 1949–50 and 9 percent above the 1949–53 average. Although drought in the western Corn Belt materially reduced corn yields in that area, the United States 1955 corn crop of 3,185 million bushels was the sixth largest of record. Soil Bank provisions attractive to corn producers could reduce production by several hundred million bushels, depending on the extent of participation.

Cotton

In 1955 cotton acreage harvested was reduced from 1954 by about 12 percent. Nevertheless, the December estimate of the 1955 crop of about 14.7 million bales was about 7 percent above the 1954 crop. The estimate of average yield per acre was a record 416 pounds, an increase of 22 percent over the previous record set in 1954. With a carryover of 11.1 million bales, the supply for the current marketing year totals about 26 million bales, a new record high. A decrease in disappearance is in prospect for the 1955–56 marketing year from the 12.4 mil-



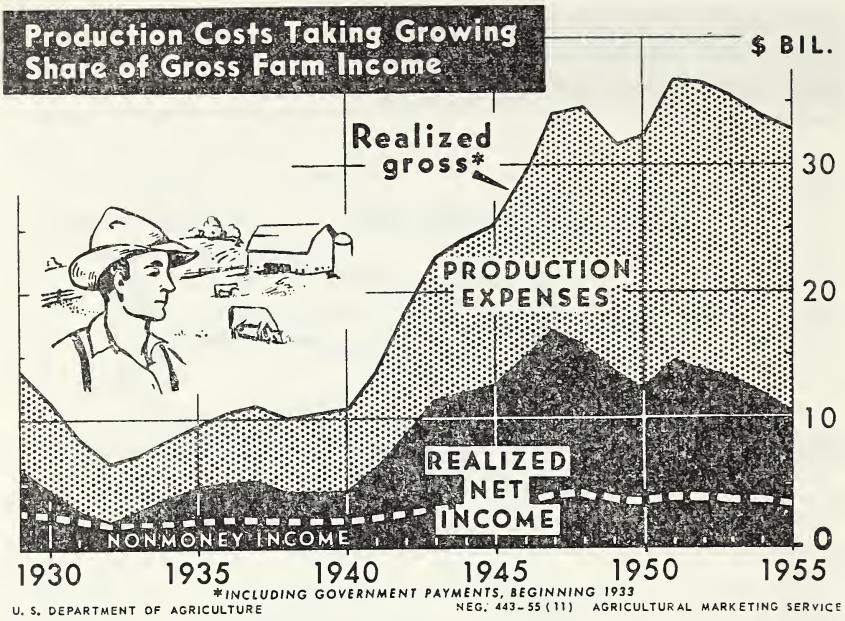
lion bales of a year earlier. Carryover on July 31, 1956, may exceed 13½ million bales—½ million more than the previous record of 1939. In October 1955 we announced 1956 marketing quotas of 10 million bales for upland cotton and 35,300 bales for extra-long staple cotton, minimum quotas permitted by law for 1956. The quotas were approved by cotton growers in a national referendum December 13, 1955. At the start of the marketing year the set aside of upland cotton was about 2.9 million bales. The set aside will be excluded from the computing price support level. The Soil Bank could reduce cotton harvested acres by 3 million to 5 million. Production could be cut by 2 million to 3 million bales a year.

Food Fats

Output of food fats and oils in 1955 was larger than in 1954. There was a record crop of soybeans—371 million bushels. Peanut production was up 57 percent from the small 1954 crop. Flaxseed production was about the same as in 1954, but cottonseed was up about 6 percent.

Livestock and Livestock Products

Production of livestock and livestock products reached a new high in 1955. Beef, veal, lamb, mutton and pork production was estimated at 26.9 billion pounds—6 percent larger than the 1954 record. Hog slaughter increased substantially as a result of a larger than average fall pig crop in 1954 and an 8 percent increase in the 1955 spring pig crop. Hog production in 1955 was 95.3 million head, about 10 percent more than in 1954. Prospects for 1956 point to a continued large outturn of meat.



Farm operators' realized net income declined again in 1955, continuing the trend underway since 1951. Compared with 1954, farm operators' realized net this year may be down about 10 percent. Compared with 1951 the decline is 28 percent. Realized net income in 1955 was the lowest in 13 years.

Estimated milk flow in 1955 reached 124.5 billion pounds, compared with the previous record of 123.5 billion in 1954. Present prospects indicate that milk output in 1956 may be somewhat larger than 1955. Production of poultry products in 1955 ran above that of 1954 and probably will continue large in 1956.

Food Consumption

Total domestic food utilization in 1955 was almost half again larger (48 percent) than in 1935–39.

Per capita civilian consumption of food in 1955 was 13 percent higher than the pre-World War II rate, 3 percent larger than in 1947–49, and 1 percent above 1954. It fell below the record year of 1946 by only 1 percent.

Our people consumed more beef, broiler meat, and eggs per person than ever before and slightly more milk and butter than in 1954. The per capita consumption of "red" meats—161 pounds—in 1955, somewhat above the 1954 rate, was close to a record, being exceeded only in 1908 when per capita consumption was 163 pounds. Consumption of all meats (including poultry) was 188 pounds per person—a new all-time high.

Price and Income

Farmers' cash receipts in 1955 were about $29.2 billion, down $1 billion from 1954. Marketings continued at a high level but prices were lower, particularly hog and corn prices.

Farm production expenses increased slightly in 1955, and were estimated at $22.3 billion, compared with $22.2 in 1954.

Farmers' realized net income in 1955 was about $10.6 billion. After adjusting for inventory changes, however, total net income from farming was about $11 billion.

Prices of farm commodities for the year 1955 averaged about 85 percent of parity—4 percent less than in 1954.

Farm land values, however, moved upward in 1955. At the year's end, the per acre value of farmland was 5 percent higher than a year before and 3 percent above the 1952 peak. We view this increase in land values as an indication of basic confidence in the future of United States agriculture. Foreclosures on farms were near the all-time low.

Agricultural Employment

The total number of persons working on farms, January–October 1955, averaged about 8,493,000, compared with 8,720,000 for the same period in 1954 and 9,080,000 for the 1950–54 average. About 1 person out of 4 so employed was a hired worker, the others being farm operators and unpaid members of farm families. The average hourly wage for farm labor without room and board was 88 cents in July 1955, compared with 87 cents a year earlier.

Farm Program Recommendations

Farm policy is never a completed task. A successful farm policy must be dynamic. It must be adopted to changing conditions and our recommendations to the Congress have that in mind.

In the past 3 years we have made significant progress in adapting farm policies and programs to the specific problems agriculture faces.

But it is not easy to find sound and solid answers to long-developing farm problems—problems that developed in a lengthy era of unbalanced budgets, inflation, and unsound government programs.

The improved farm programs we seek must contribute to a sound economy by increasing farm purchasing power. They must provide incentives to work, to serve, to go forward with agricultural and industrial growth. They must build, not waste or destroy, natural resources.

Conditions in agriculture must improve if we are to maintain a healthy balance in our economy.

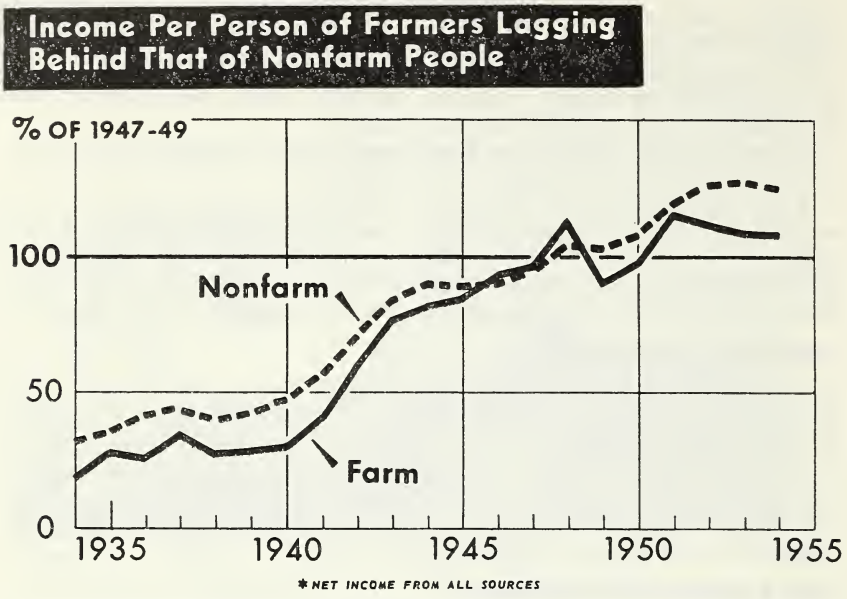
We look for some improvement in the prices of some farm commodities in the year ahead. We are going to take further active steps to bring to a halt and reverse the downward trends of farm price and income in general to benefit our farmers and assure that industry and industrial labor be not adversely affected.

We have built soundly in the Agricultural Act of 1954 and the Agricultural Trade Development and Assistance Act of 1954.

Flexible price supports, which were tried on a small scale in 1955, will come into wider use as an instrument to bring supply into balance with domestic and export demands for food and fiber, still our most formidable challenge.

We have in the past 2½ years moved into consumption more than $4 billion worth of Government-held commodities, lightening the carryover load on farmers.

We have shown what can be done by realistic pricing and aggressive marketing of dairy products, beef, and vegetables. Eighteen months



Total income of persons on farms from farm and nonfarm sources has declined much less than farm operators' realized net income. In 1954 farm persons received about $1 of nonfarm income, mostly wages, for every $2 received from farming. The number of farm people declined 10 percent between 1951 and 1954, but apparently stabilized in 1955.

ago the outlook for the dairy industry was black indeed. In 1954, the Commodity Credit Corporation owned 466 million pounds of butter. As of December 7, 1955, our stocks were down to 111 million pounds. In 1954, CCC held 436 million pounds of cheese—that has been reduced to 280 million pounds. In 1954, we owned 599 million pounds of dry milk—on December 7, 1955, we had only 11 million pounds.

What agriculture can do in one segment of the industry it can do in others. The relative stability achieved by the dairy industry indicates that stability elsewhere in our farm economy can be achieved along the same sound lines with the same cooperation between all groups involved.

It is essential that we continue along the sound lines of the past three years, intensifying our many-sided attack on farm problems.

We envision a many-pronged attack on these problems.

The first prong is a "Soil Bank" or "Acreage Reserve" and "Conservation Reserve" plan, which will do three things:

1. Help bring production and demand into balance by taking soil bank acreage out of the production of surplus crops.

2. Help the Nation achieve a long-range conservation goal which will benefit all our people.

3. Increase farm income by providing payments for participation in the Soil Bank.

We must find ways of adjusting production to the market—ways that will check the growth of surpluses. That is the main purpose of the Soil Bank.

The Soil Bank has two parts. Part one, the *Acreage Reserve*, calls for a voluntary and temporary cut in production of the crops now in greatest surplus—wheat, cotton, corn, rice, tobacco, and peanuts. For placing acres in the reserve—acres on which there would be no cropping or grazing—farmers would receive certificates, redeemable either in commodities from CCC stocks or in cash, based on the normal net yields of the acres. This would be sure income. It would be income even in the event of crop failure. And the incentives would have to be generous enough to cause farmers voluntarily to participate.

The second part of the Soil Bank proposal is a *Conservation Reserve*. Farmers would contract with the Government to shift land out of cultivated crops and into forage or trees and, where feasible, to ponds and reservoirs. Any farmer would be eligible to participate. He would be paid a fair share of the cost of establishing the forage or tree cover—up to a specified maximum amount per acre that will vary for different regions. Further, as the farmer reorganizes his farm along these soil conserving lines, the Government would provide annual payments for a period of years related to the length of time needed to establish the new use of the land.

A Soil Bank would, in short, increase farm income; reduce surplus stocks; cut excess production; reduce storage costs; ease apprehension among our friends abroad; conserve soil, water, and timber resources; and strike a better balance of production and markets.

A second major need in our 1956 attack on farm problems is added protection for family farms. We propose liberalized credit for farmers who are unable to obtain loans through ordinary channels. We must help these farmers make a successful transition from a wartime to a peacetime economy.

We have already moved to broaden our surplus disposal programs. On December 14, I announced that wheat, corn, rice, and dry edible beans will be made available to voluntary relief organizations for distribution to the needy in foreign lands. Our food will become increasingly effective as an ambassador of good will. We shall push also for an increase of donations to needy persons here at home.

In the past 2 years agricultural exports have been increased; we seek a further expansion of foreign markets through regular commercial channels and also through an enlarged and strengthened barter program. We shall intensify our efforts toward the removal of surpluses of perishables. We plan to step up use of surplus foods in the school lunch and by the armed forces, and through continuation and expansion of the special school milk program.

As another major point of emphasis, we need to strengthen our commodity programs. I have long fought for an easing of controls that are grossly unfair and even contrary to common sense. There is no good reason why a farmer who wants to feed wheat on his own farm should be prevented from doing so by marketing quotas. Yet that is the situation today. Changes in these regulations are needed. We seek programs for corn, cotton, and other commodities to stop further accumulation of surpluses and to reduce carryovers.

As still another point of major emphasis, we will use increased appropriations for research to develop new markets, new crops, new uses of crops, and lower costs of production and marketing.

These developments reflect exhaustive studies. They are designed to benefit farmers and the rest of our citizens. Our programs must help farmers to attain a bigger share of the prosperity that the rest of the Nation now enjoys.

If we build sound programs now when we have the opportunity, there is no reason to fear the future. Our agriculture is on solid ground because:

1. It is financially strong. It has $9 of assets for every $1 of debt. Three out of four farmers own their farms and 7 out of 10 are mortgage-free.
2. Farmers are more efficient and better informed than ever before. They adjust to changing conditions faster.
3. Our people have become accustomed to good diets, and they want even better diets.
4. Our population is rapidly growing, and the end is nowhere in sight.
5. Sound farm programs put a floor under prices and future programs now being developed, with their emphasis on marketing, will be even more effective.
6. The adjustment from war to peace is being made with less disruption than ever before after a major war.
7. Our national economy is expanding rapidly, and a growing economy will foster farm prosperity. We are about to move into a $400 billion economy.

I believe that we stand on the very threshold of an era of tremendous human advancement. Day after day, new marvels of industry, agriculture and science are presented to make living better and easier. If the threat of war can be finally removed and our powerful economic machine unleashed to produce all-out for peace, our children will be able to enjoy a slumless America and such economic diseases as poverty and malnutrition may become as rare as smallpox and diphtheria.

But we must have faith in the free enterprise system to make it so. We must preserve our free American way of life. We must have faith to plan and courage to carry out our plans.

The improvements we are recommending in the basic farm program are a workable approach to reducing the surpluses, bringing production and markets into balance at fair prices, and so raising the income and advancing the security of our farm families. It would speed the transition to a stable, prosperous, and free peacetime agriculture with a bright future.

We have measured our farm policies on the basis of what is good for the farmer and the Nation—not on the political applause meter. We have tremendous faith in the sound judgment of a free and informed people.

May a kind Providence help us meet the challenge to keep America strong—strong in its agriculture and its industry—strong economically and socially—strong in the integrity, moral courage, and spirituality of her people.

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